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INDIAN TARIFF BOARD

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GRANT OF PROTECTION TO THE

GLASS INDUSTRY



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Secretary	. . .	Mr. G. S. Bozman, I.C.S. (up to 9th March, 1932).
Technical Adviser	. . .	Mr. F. W. Hodkin, B.Sc., F.I.C.

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No. 458-T. (2).

GOVERNMENT OF INDIA.

DEPARTMENT OF COMMERCE.

Simla, the 20th October, 1931.

RESOLUTION.

TARIFFS.

The Government of India have received representations from certain glass manufacturers requesting that protection may be extended to the glass industry in India. In pursuance of paragraph 3 of the Resolution of the Government of India, Department of Commerce, No. 3748, dated the 10th July, 1923, they have decided to refer to the Tariff Board for examination these representations along with any others of a similar nature which may be brought to its notice.

2. In making its enquiry, the Tariff Board will be guided by the principles laid down in the Resolution adopted by the Legislative Assembly on February 16th, 1923, and will consider—

- (1) Whether the conditions laid down in the Report of the Indian Fiscal Commission are satisfied in the case of the industry, and to what extent, if any, and in respect of what articles, or class or description of articles, protection should be afforded;
- (2) in what form and for what period protection, if any, should be given; and
- (3) how its recommendations, if any, will affect other industries.

3. Firms and persons interested who desire that their views should be considered by the Tariff Board should address their representations to the Secretary to the Board.

ORDER.—Ordered that a copy of the above Resolution be communicated to all local Governments and Administrations; all Departments of the Government of India; the Central Board of Revenue; the Director General of Commercial Intelligence and Statistics; the Indian Trade Commissioner, London; the Secretary, Tariff Board; His Majesty's Trade Commissioner in India; all Chambers of Commerce and Associations; the Canadian Government Trade Commissioner in India; the French Trade Commissioner in India, Burma and Ceylon; the Deputy High Commissioner for India, London, and the Secretary, Imperial Council of Agricultural Research Department.

Ordered also that it be published in the *Gazette of India*.

GLASS

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**Press Communique issued by the Tariff Board on the 20th October,
1931.**

An enquiry into the Glass Industry has been referred to the Tariff Board by the Government of India. All firms and persons interested, who desire that their views should be considered by the Board, are requested to send written representations (together with five spare copies) embodying their opinions so as to reach the Board not later than 20th November, 1931. They should be addressed to the Secretary, Indian Tariff Board, Town Hall, Bombay.

Questionnaire for Glass Manufacturers issued by the Tariff Board.

1. Are your works owned by a public or private registered company or an unregistered firm for a private proprietor?
2. To what extent is the capital held by Indians? How many Indians are Directors and how many form part of the superior management?
3. At what date did your works commence to manufacture?
4. What is the full capacity of your works as at present equipped for the manufacture of glass?
5. (a) Please enumerate the various kinds of glassware which you manufacture, and
(b) state the quantity of each kind which you have manufactured annually for the last five years.
6. Where is your factory situated? Do you consider it is advantageously situated in respect of—
 - (a) vicinity to the areas from which your principal raw materials are drawn;
 - (b) vicinity to the coalfields or other sources of power or fuel;
 - (c) vicinity to an important market;
 - (d) other considerations, such as an abundant labour supply.
7. What do you consider the most important factors in selecting the site for a glass factory in India?
8. Do you consider that your products are equal in quality and appearance to imported glassware? Do they command the same price? If not, to what causes do you ascribe the lower price of Indian products?
9. Is the production of glass at your work limited to certain months of the year? If so, please explain the reason and state whether the fact contributes to an increase in the cost of production as compared with the cost in other countries.

Raw Materials.

10. What are the raw materials used in your works for the manufacture of glass including fire-resisting materials?
11. What are your annual requirements of raw materials according to the rate of output equivalent to the full capacity of the plant?
12. What quantity of each of the raw materials is required for the production of one ton of each principal class of glassware?
13. From what areas does the factory draw its main supplies of raw materials and at what distance from the factory are these areas situated?
14. How are the raw materials collected and by what means are they transported from the source of supply to the works?
15. What royalty, if any, is payable on raw materials to Government or to private persons?
16. Please state the cost delivered at the works of each raw material divided under the following heads:—
 - (a) Royalty, if any;
 - (b) Labour employed on collection, etc.;
 - (c) Freight;
 - (d) Miscellaneous charges.
17. Do you hold any concessions as regards the supply of raw materials? If so, what are the terms and do you consider them reasonable?
18. Do you find it necessary to import any raw materials? If so, please state from which countries you import them and at what prices and the Customs duties payable on them.

19. Are any of these materials now imported likely to be manufactured in India at an economical cost? Please give details.

20. Do you consider the materials used by you at present suitable for the manufacture of the kinds of glassware in which you are interested? Please state, if possible, the chemical and mechanical analysis of the materials. If you do not consider the materials suitable, please state precisely in what respects they are unsuitable.

21. From what raw materials is glass made which is imported into India and which competes with your product?

22. Do you make your own crucibles and pots? If so, please state the type and the composition of the clay used, the source from which it is obtained and the method of building. If the crucibles or pots are imported, please state from which countries you import and at what prices and what you consider to be the effect of transit on the life of the crucibles or pots?

23. Are your furnace refractory materials satisfactory? Where do you obtain them and have you any knowledge of their composition and life when in use?

Labour.

24. Do the processes employed in the manufacture of glass require much expert supervision involving the use of skilled labour imported from abroad?

25. What number of imported labourers are employed at present? What progress has so far been made in the substitution of Indian for imported labour?

26. Please state in detail the facilities which now exist for workmen to acquire training in the process requiring skilled work. Has it been found that the Indian labourer improves with training?

27. Are there any processes in which skilled labour is or may be replaced by automatic or semi-automatic machines?

28. What are the chief considerations which prevent a more extensive employment in your works of machinery in place of manual labour?

29. Do you consider that the high temperature at which many processes in glass manufacture are carried on and the high percentage of humidity in the air affects the efficiency of Indian workmen as compared with those in other countries?

30. Please give for the latest year for which figures are available—

(a) the total wages paid at your works;

(b) the average rate of wages in different classes of labour;

(c) the total number of workmen employed.

31. What arrangements have you made for housing your labour and promoting its welfare in other directions?

Power and Fuel.

32. What is the principal fuel used in the works? Is it available in sufficient quantities?

33. From what distance is the fuel brought? What is the freight paid on it and the total cost delivered at the works?

34. Is the fuel used in the furnace applied directly or in the form of gas? Please state the reasons for the practice adopted.

35. Is any power used in the works? If so, is it derived from electricity or steam? What are the processes in which power is used?

36. What is the total quantity of fuel required per ton of (a) melted glass, (b) finished glassware?

Equipment.

37. Do you consider that your works are sufficiently large as a unit of production to ensure economy? What in your opinion is the smallest unit of production which can be operated economically under present conditions?

38. Please give a brief description of your plant and machinery and the process of manufacture employed in your works.

39. Do you consider your machinery and other equipment and the processes of manufacture adopted by you sufficiently up-to-date and efficient to enable you to compete successfully against foreign manufacturers? If not, please state in what respects further improvements are required and the extent to which such improvements may be expected to reduce costs or improve quality?

40. Have you in recent years adopted any new processes of manufacture or installed new plant and machinery? If so, please give a brief description of them and state whether the results have fulfilled the expectations entertained.

41. Do the conditions of manufacture in India differ materially from those in competing countries? If so, what are the important differences? Have the conditions in India led you to adopt processes different from those in competing countries?

42. What parts of the machinery and plant are made in India and what parts imported? In the latter case, from which countries are they imported and what are the present prices?

Market and Foreign Competition.

43. What is the present total Indian production of the principal kinds of glassware including bangles so far as it can be ascertained or estimated?

44. In what parts of India are your principal markets situated and what are the distances which separate them from the works?

45. (a) What are the present rates of railway freight applicable to glassware? Have you any advantage in this respect over imported glassware?

(b) Is railway freight charged on nett weight or gross weight, i.e., including material used for packing? What is the normal ratio of nett weight to gross weight?

46. Please compare the railway freight paid by importers from the ports to selected up-country markets and the railway freight paid on your products from works to the same markets.

47. Do you consider that the export of glass from India to any foreign countries is probable? If so, to what countries and to what extent?

48. Which are the foreign countries from which competition in the Indian markets is keenest? In which of the Indian markets and in respect of what classes of glassware is competition keenest?

49. Please state for each of the past five years—

(1) the prices at which the principal kinds of imported glassware have entered the country;

(2) (a) the prices realised by you (nett *ex-works*) for each class of glassware; and

(b) the average price realised by you for all classes.

N.B.—In stating the import prices, please show *c.i.f.* prices, landing charges and Customs duties separately. If possible, give also the freight rates from foreign ports to India.

50. Please state the current prices at which imported glassware is landed in India, showing as in question 49, *c.i.f.* prices, landing charges and Customs duty separately.

51. Are any of your products purchased by Government or other public bodies? If so, please state the extent of their purchases during the past five years.

52. Do you consider that as compared with the foreign manufacturer the Indian manufacturer is at a disadvantage in respect of plant and machinery,

labour, materials, climatic conditions, freights, Customs duties or other factors?

53. Have you any reason to suppose that the prices at which foreign producers sell for export to India are uneconomical prices?

Capital.

54. What is the block value of your property as it stood in your books at the end of the last complete year for which figures are available, under the following heads:—

- (a) Leases and concessions;
- (b) Lands;
- (c) Buildings;
- (d) Plant and machinery;
- (e) Miscellaneous assets.

55. If the figures given in answer to question 54 represent the value of the assets after depreciation has been written off, please state the total amount written off for depreciation since manufacture commenced.

56. What do you estimate would be the present day cost under the head (a) buildings, and (b) plant and machinery, of erecting a factory having the same capacity as your present works? Would the operating cost of a new works established now be greater or smaller than yours? Please state separately, if possible, the cost of the plant and machinery used for the manufacture of each principal class of glassware.

57. Please prepare a statement showing for each of the past five years—

- (a) the amount of paid up share capital,
- (b) the actual amount distributed as dividends, and
- (c) the percentage of paid up capital represented by the dividend.

58. What is the amount of the debenture loans, if any, raised by you? At what dates were they issued and what is the rate of interest payable?

59. What is the amount of the reserve fund, if any, created by you, either from surplus profits or from other sources?

60. What additional capital would it be necessary to raise in order to carry out any scheme of replacement or extension of plant contemplated by you? Please give details.

Works costs and overhead charges.

61. Please fill up the two forms annexed to the questionnaire regarding works costs.

62. What is the percentage of wastage in your factory including breakages at each stage of manufacture? What progress have you made in this respect in the last five years?

63. Please explain why fully (a) under which items in Form II and (b) to what extent, variations in expenditure occur as between the following kinds of glassware:—

- (a) Lantern Globes,
- (b) Bottles,
- (c) Bangles,
- (d) Sheet Glass,
- (e) Other kinds.

64. What are the rates of depreciation allowed by the Income Tax authorities? Do you consider that these rates are suitable?

65. What is (a) the average value of the stocks of raw materials, fuel and finished goods held by you, and (b) the average outstandings in respect of goods sold by you?

66. Have you a Head Office other than the office of the local management? Is it under the control of a firm of Managing Agents? If so, please state—
 (a) the annual amount of the Head Office expenses?
 (b) the Agents' Commission.

Claim for Protection.

67. In paragraph 97 of their Report, the Fiscal Commission laid down three conditions which in ordinary cases ought to be satisfied by industries claiming protection. Do you consider that those conditions are satisfied in the case of the Glass industry? And in particulars—

- A. Do you claim that the industry possesses natural advantages, such as an abundant supply of raw materials, cheap power, a sufficient supply of labour or a large home market?
 B. Do you claim that without the help of protection, the industry is not likely to develop at all or is not likely to develop so rapidly as is desirable in the interests of the country?
 C. Do you claim that the industry will eventually be able to face world competition without protection?

These conditions have been approved by the Government of India and by the Legislative Assembly and it is therefore of great importance to ascertain whether they are satisfied. If you consider that the Glass industry fulfils these conditions, the reasons for your opinion should be fully explained.

68. (a) What is the amount of protection which you consider necessary?
 (b) In what form do you propose it should be given?
 (c) For what classes of glassware do you require protection?

69. What are the principal industries which are likely to be affected by a protective duty on glass? To what extent would they be affected?

FORM I.

Statement showing the total expenditure incurred at works on the production of glassware during the past five years.

	1926-27.	1927-28.	1928-29.	1929-30.	1930-31.
J. Raw Materials—					
(a) Sand					
(b) Soda Ash					
(c) Lime					
(d) Crucibles					
(e) Refractory materials for furnaces.					
(f) Other materials					
II. Works Labour					
III. Power and Fuel					
IV. Supervision and office establishment.					
V. Current repairs and maintenance					
VI. Packing					
VII. Selling expenses					
VIII. Miscellaneous, e.g., stationery, rent, taxes and other general charges.					
Total					
Total production in tons of glass for the year—					
(a) Melted					
(b) Finished					

FORM II.

Statement showing the works expenditure per ton of each class of glassware during the past five years.

	1926-27.	1927-28.	1928-29.	1929-30.	1930-31.
I. Raw Materials—					
(a) Sand					
(b) Soda Ash					
(c) Lime					
(d) Crucibles					
(e) Refractory materials for furnaces.					
(f) Other materials					
II. Works Labour					
III. Power and Fuel					
IV. Supervision and office establish- ment.					
V. Current repairs and maintenance.					
VI. Packing					
VII. Selling expenses					
VIII. Miscellaneous, e.g., stationery, rent, taxes and other general charges.					
Total					
Less credit for materials recovered					
Nett Total.					
Total output in tons of each class of glassware.					

N.B.—It is important that this form should, if possible, be filled in separately for each class of glassware, e.g., sheet glass, globes, bottles, bangles, etc.

**Questionnaire for Glass Importers and Traders issued by the
Tariff Board.**

1. Which are the foreign countries from which competition is keenest in India? In which of the Indian markets and in respect of what classes of glassware is competition keenest?
 2. Please state for each of the past five years the prices at which the principal classes of imported glassware competing with Indian glass have entered the country. Please show c.i.f. prices, landing charges and Customs duties separately. If possible, give also the freight rates from foreign ports to India.
 3. Please state the current prices at which imported glassware is landed in India, showing c.i.f. prices, landing charges and Customs duties separately.
 4. (a) What are the present rates of railway freight applicable to glassware? Have Indian factories any advantage in this respect over imported glassware?
(b) Is railway freight charged on nett weight or gross weight, i.e., including materials used for packing? What is the normal ratio of nett weight to gross weight?
 5. Please compare the railway freight paid on glass from ports to selected up-country centres and the freight on Indian made glass from works to the same markets.
 6. Do you consider that Indian glassware is equal in quality and appearance to imported glassware? Does it command the same price? If not, to what causes do you ascribe the lower prices of Indian products?
 7. From what raw materials is glass made which is imported into India and which competes with Indian products?
 8. Do the conditions of manufacture in India differ materially from those in competing countries? If so, what are the important differences?
 9. What is the present total Indian production of the principal classes of glassware including bangles so far as it can be ascertained or estimated?
 10. Do you consider that as compared with the foreign manufacturers the Indian manufacturer is at a disadvantage in respect of plant and machinery, labour, materials, climatic conditions, freights, Customs duties or other factors?
 11. Have you any reason to suppose that the prices at which foreign producers sell for export to India are uneconomical prices?
 12. What are the principal industries which are likely to be affected by a protective duty on glass? To what extent would they be affected?
- N.B.*—The principal classes of glassware for which protection is sought are sheet glass, globes and funnels, bottles and bangles.

No. 1.—*Letter from the Secretaries, All-India Glass Manufacturers Association, Ogalewadi, District Satara, No. 2982, dated the 4th July, 1926.*

On behalf of the Glass Manufacturers of India we have the honour to send you herewith four copies of the Representation for Protection to the Glass Industry made to you and have to request you to move the Indian Tariff Board to examine the question at a very early date.

Kindly acknowledge receipt and oblige.

To the Secretary to the Government of India, Commerce Department,
Delhi.

SUBJECT.—*Re. Protection for Indian Glass Industry.*

Sir,

We the undersigned Glass Manufacturers of India, have the honour to approach you and put before you the case for protection for the Indian Glass Industry. The Glass Industry in India is new and it has been struggling for the last twenty-five years and more. The Glass Works, which lie scattered throughout the country, have been mainly manufacturing chimneys, globes and lampware, though some factories are manufacturing articles in other lines too, such as bottles, phials and other containers, stationery requisites, electric cells and glass tiles. These goods have been continuously supplied to most of the Indian Railways and they have met their approval. The products of the Indian Glass Industry have also been recently patronized by Government and semi-Government bodies and by the glass consuming public in general.

2. The industry is only more than two dozen years old, and to-day it is experiencing a great handicap on account of the keen post-war foreign competition in the very line in which the Indian glass factories have been so far working. We mean the lines of chimneys, globes pressed ware, bottles, phials and bangles. Many glass factories were started in the war-time and their total number went up to 50 or 55; but most of these ceased to work as soon as the war ended and keen foreign competition came in. This shows how greatly it stands in need of protection in its infancy. Foreign Glass industry is of long standing and it has the advantages of efficient and trained labour and up-to-date methods, and as such it is able to put up keen competition. It is but natural, under these circumstances, that the industry should turn for protection to Government who have now definitely accepted in the best interests of India a policy of protection to be applied with discrimination, along the lines indicated in the report of the Fiscal Commission, in order to foster the growth of industries in India. The industrial growth in this country has not been so far, it need hardly be said, commensurate either with its size or with its needs, though during war time the Indian glass industry had almost reached a point at which it met nearly 60 per cent. of its class requirements in chimney, globe, bangle and other lines.

3. The conditions which have to be fulfilled according to the same report by an industry before its claim to protection could be considered valid are, we respectfully submit, eminently satisfied by the Indian glass industry. (A) There is, we may be allowed to point out, in the first place every natural advantage for the healthy and vigorous growth of glass industry in India. There is an abundance of the principal raw materials—silica, lime and coal—in the country and their supplies can be said to be almost inexhaustible. Good and intelligent labour is available but not a sufficient and steady supply of trained and expert labour; and even the Indian climate is not uncongenial for this industry as is said by people who can speak with authority on this subject. In addition to all these advantages there is a large and growing home market to absorb the products of this industry. It may be noted in this connection that the annual glass imports of India in blownware (chimneys, globes and lampware) alone, not to speak of other glass articles, exceed

thirty-four lakhs of rupees if we take the average of imports in these lines for the years 1919 to 1923. It may be stated that India is actually supplying to-day nearly 30 per cent. of the Indian demand in these lines. It is necessary further to remember that the market for glass in India is slowly but surely expanding as the interior of this vast country is being brought more and more under the influence of modern civilisation by means of spread of education and growth of the means of communication and by means of increase of contact between the advanced and backward sections of the people. Glassware is used to-day on a much more extensive scale than twenty-five years back due either to choice or to fashion or to necessity, and everything tends to show that its use is steadily growing. With such advantages of raw materials, intelligent labour and growing market the industry is sure to thrive and prosper if it but receives at the hands of the State sufficient protection in its early stages, to enable it to successfully overcome the initial difficulties of an infant industry. (B) The industry is passing to-day through great difficulties and many glass factories which were working in 1920 have actually closed down during the last four or five years. If this infant industry is to live and grow with vigour at all within a reasonable time and establish itself on a solid foundation as a national industry, it surely never stood in greater need of protection and help than to-day when competition from well established foreign glass industry, especially that of Germany, Austria, Czecho-slovakia, Belgium and Japan, with all its advantages of expert labour and up-to-date methods, has become so acute and keen. The position is bound to grow from bad to worse in the absence of any proper and early action on the part of the Government and, it is feared, it may even become impossible at no distant date. The industry will be able to overcome all these difficulties in its initial stages only under a healthy regime of protection and it will not then be long before it is able to face competition in the open market. (C) The possibilities for its vigorous growth in India are so great that the industry will eventually be able, as far as we can judge, to stand alone in the open market without the shield of protection, when our labour becomes expert and improved methods are used. The protection, therefore, which is sought by us is only of a temporary character. Protection granted, it is quite possible to improve and at the same time to increase the output of the industry and thus gain the advantages, which our foreign rivals have done, under better conditions, by training our labour and by adopting improved methods of manufacture. The industry will, in course of time, be able to successfully venture in other lines of glass such as beads, false pearls, bangles of quality and style, etc., which have not been so far touched. It will thus gradually be able to substantially meet the glass requirements of the country. Stability and reasonable profits being assured under a healthy protective regime, more capital will seek investment in this industry, many more works will be established and the old ones that have closed down will be revived. The industry as it stands even to-day meets no insignificant proportion of the chimneys, globes and other lampware needs of the country. The Indian glass factories produce and supply between them chimneys, globes and other lampware to the extent of about 12 lakhs of rupees even to-day, i.e., more than 30 per cent. of the total requirements of the country in this line, and this percentage was even higher during war when it stood at about 70 per cent. This alone strengthens our view-point.

4. It is certainly not claimed here on behalf of the industry that it will be able to produce all kinds of glassware and thus meet the whole of Indian demand which goes at present on an average, to the extent of about 250 lakhs of rupees, in the immediate future. But it can be said with justice that it will be able to meet the whole of the demand for chimneys, globes and other lampware, and also to a considerable extent that for bottles, phials and containers of other sorts, sheet and plate glass, beads and false pearls, bangles, and tableware such as decanters, tumblers, etc., at competitive prices.

5. (A) At present there is an *ad valorem* import duty of 15 per cent. on Soda Ash, which is used in large quantities in the manufacture of glass, and which has to be imported. This duty is a positive handicap on this

industry since this raw material is an essential one. The crucibles or pots, which have also to be imported to a great extent, have to pay an import duty of 15 per cent. (B) Facilities for transporting by rail the finished products are not what they should be. Indian railways have so far pursued a policy in this respect which has certainly not been very encouraging to the growth of indigenous industry, railway rates schedules having been based on high and indiscriminate bases. It is but natural for us to expect the Indian Railways to give preferential treatment to the products of Indian industries, and to remove certain unreasonable restrictions and obligations imposed on the booking of glassware.

6. The traffic conditions relating to raw materials required for and the finished products turned out by the Indian glass industry should be made more favourable and since everything is coming down to the pre-war level, the railway rates which were substantially increased from 1919 to 1922 should also be reduced to that level. But they still continue to be high though slight reduction is made in the case of coal alone.

Concentrated glass industry will not be a boon to a vast country like India since hollow and fragile wares require a far higher cost to transport them than that required for the transport of their raw materials. The works must, therefore, remain scattered over the country as at present, serving the needs of local areas. This proves the necessity of making raw materials mobile as far as possible by giving facilities for their easy and cheap transport.

7. To illustrate clearly the keenness of the competition which the Indian glass industry has to face to-day, we shall take the example of a standardized article like the ordinary Dietz type globe which sells so extensively. German, Austrian and Japanese globes of that type are offered to-day at the amazingly low price of about Rs. 1-8 per doz. The Indian glass manufacturer does not find it paying at all to offer this article to-day at this price. He merely struggles and has nothing left for the improvement of the industry. Foreign industry is of long standing and it has the advantages of up-to-date machinery, methods and trained and expert labour. But the Indian glass industry does not possess these advantages and it has to struggle hard to keep going. If the manufacturer is not fortunate enough to live to-day, he has actually to work at a loss or close down. And this loss becomes all the greater when it is remembered that he is mainly manufacturing chimneys, globes and other things in which the margin of profit was never high even in prosperous times and in which the market is so depressed to-day. This state of things must not be allowed to go on and the industry ought to be protected for some time.

8. It may be pointed out *en passant* that towards the close of the Great European War, the Intelligence Branch of the Indian Munitions Board (a war time creation of the Government of India and then working under the Commerce Department) had addressed a letter No. 1-203/1, dated Simla, the 29th July, 1918, to the various glass factories in India, asking them to supply certain information. In it the Indian Munitions Board had clearly shown its anxiety (and in this we can apparently see the anxiety of the Government of India also) to place the Indian glass industry on a firm footing so as to enable it to withstand competition from abroad, after the war. It will be seen from this that Government have already held out clear hopes of help and protection to this industry, apart from the question of the more recent and definite adoption by Government of a policy of discriminate protection. We would like to refer Government to the letter of the Indian Munitions Board, reference of which has been furnished above, and to point out further that when Government needed glass articles, Indian glass factories have supplied them at that critical time of war when their import had practically ceased.

9. It is, therefore, necessary for the Indian glass industry to have protection, if it is to live and thrive, and it may not be out of place here to point out the ways in which this can easily be done, though the ultimate decision, we recognize, as to the ways must rest with the Government when they see the justice of this demand. The objects that are sought to be

attained by protection are, firstly, the preservation and healthy and vigorous growth of this industry, and secondly, the attracting of capital to it and the promotion of the development of India's natural resources.

10. The protection must, therefore, be adequate if it is to serve this purpose; hence the immediate needs as well as the future of the industry have both to be considered. Certain raw materials such as Soda Ash, Crucibles, etc., should be exempted from import duty for this industry or a rebate allowed in their case. There should be made a uniform increase of 10 per cent. in the import duty on all kinds of glassware and further the Indian glass industry should receive a bounty of 15 per cent. for a period of 10 years. The interest of the industry will thus be served and that of the consumer will not be much affected since the output of the Indian Glass Industry will receive a stimulus and the prices of glassware will only be slightly changed. The industry will, thus, be able to place itself on a firm footing and will attain sufficient strength and vitality to be able to face open competition.

We have the honour to be,
Sir,

Your most obedient servants,

For Ogale Glass Works, Ltd., Ogalewadi
(Aundh State), District Satara,
(Sd.) S. P. Ogale & Co.,
Managing Agents.

For Paisa Fund Glass Works, Talegaon
(Dabhada), District Poona,
(Sd.) R. D. Chandorkar,
Superintendent.

For United Provinces Glass Works, Ltd.,
Bahjoi, District Moradabad,
(Sd.) I. D. Varshnei,
Managing Agent.

For The Ganga Glass Works, Ltd.,
Balavali, District Bijnor,
(Sd.) Vishnu Datta,
Managing Director.

For Bengal Glass Works, Ltd., Calcutta,
(Sd.) Ebram Peer Mahomed & Co.,
Managing Agents.

For Onama Glass Works, Gondia (C. P.),
(Sd.) A. V. Pandit,
Managing Proprietor.

No. 2.—*Copy of letter No. 458-T., dated the 7th July, 1927, from the Secretary to the Government of India, Department of Commerce, to Messrs. Ogale Glass Works, Ltd., Secretaries, All-India Glass Manufacturers' Association, Ogalewadi, District Satara.*

REPRESENTATION FOR PROTECTION TO THE GLASS INDUSTRY.

I am directed to refer to your letter No. 2982, dated the 4th July, 1926, with which you forwarded an application from certain Glass Manufacturers in India for the grant of protection to the Indian Glass Industry.

2. In reply I am to say that the Government of India have given the matter their careful consideration, but are not satisfied that a *prima facie* case has been made out for a reference to the Tariff Board. In respect of raw materials, the glass industry cannot be said to enjoy any natural advantage so long as it is dependent on the use of imported soda ash, for the cost of this material is a large percentage of the total cost of production. Even more important is the lack of trained and expert labour and of the scientific and technical knowledge required for the successful manufacture of glass. This is a point to which the Indian Industrial Commission drew special attention in Appendix E to their Report, and the Government of India have no reason to believe that the position has changed materially in this respect since the Report was written. The Commission expressed the view that protective tariffs might bolster up the existing factories, but would prove ineffective, unless they gave rise to scientific enquiry and expert treatment of the many problems involved, and that to establish a tariff and then to trust to private effort was not likely to be productive of satisfactory results. The Government of India consider that the view expressed by the Commission is well founded. Before the question whether the glass industry should be protected is referred to the Tariff Board, it is an indispensable preliminary that the possibilities of the industry should be explored scientifically. It would be necessary to ascertain in what parts of the country (if any) cheap local supplies of soda ash could be made available and by what means the industry could obtain adequate technical guidance and the necessary expert labour. Until these points have been cleared up, it is impossible to forecast the future of the industry, or to obtain any assurance of its ultimate ability to meet world competition unaided.

3. The Industrial Commission were of opinion that the State should take the lead in research, employ the experts, and place them in charge of practical work. In pursuance of this object, the Government of India, as far back as 1918, endeavoured to recruit a suitable glass expert to investigate the conditions of the glass industry in India and to advise as to the possibility of developing it. The efforts made, however, proved entirely fruitless and the project was ultimately abandoned. As matters now stand, the development of the glass industry falls within the sphere of the Provincial Departments of Industries, and the firms whom you represent would do well to approach them on the subject.

4. I am to add that, while the Government of India cannot hold out any immediate hope of a reduction in the import duty on soda ash, they recognize that it must add appreciably to the cost of glass manufacture in India and that its reduction might be beneficial. The question will be considered in connection with other proposals for the reduction of duties on raw materials.

5. With regard to your complaint regarding railway rates, I am to say that requests for reductions should be made direct to the railways concerned.

Copy, with a copy of the letter replied to, forwarded to the Government of—

Bombay, Revenue Department,
Bengal, Commerce Department,
United Provinces, Industries Department,
Central Provinces, Commerce and Industry Department,

for information.

Copy, with a copy of the letter replied to, also forwarded for information to the Department of Industries and Labour.

By order, etc.,
L. Sen,
Assistant Secretary to the
Government of India.

No. 3.—*Letter from the United Provinces Glass Works, Ltd., No. 15, dated the 27th July, 1927.*

Your reply No. 458-T., dated the 7th July, to the representation for protection to the Glass Industry shows that it did not receive sympathetic attention of the Government. However, the points raised therein are further explained below with the hope that the Government will give their early attention to the Industry rather than give evasive replies based on unconvincing reasonings.

1. *Soda Ash.*—Its percentage in the total cost of production has been said to be large while it does not come to more than 7 per cent. on the price of goods manufactured. This is from our practical experience and accurate calculations. No doubt Soda Ash is imported but this is not prohibitive for Indian Glass Industry. Japan has been importing Soda Ash from abroad for the last 40 years and yet stands as one of the foremost glass manufacturing countries. Then there are other most advanced countries counted as leading manufacturers of certain goods the raw materials of which are imported from other countries.

2. Lack of trained and expert labour is admitted on all hands and the case for protection has been made on this as one of the important grounds. Protection is demanded till this lack is made up during a period of 10 years. This lack should not be retorted as a ground for refusing protection. However, it may be added here for the information of Government that in this respect enterprise has not been lacking. There are seven glass experts with Foreign University training, three of whom were sent out on Local Government Scholarship. Majority of these are rotting for want of manufactories. Out of 58 glass factories in 1920, 50 closed down for want of protection. The remaining few factories have proved beyond doubt the possibilities of glass industry in India by their continued existence in face of world competition. But in order that the Industry should flourish in general, protection is necessary till our experts are able to train local labour and gain efficiency in manufacturing processes. The views expressed by the Commission were surely well founded, it was for the Government to make scientific enquiry and give expert treatment to the problems concerning glass industry. It is stated Government made effort in this respect in 1918. We would be thankful to be advised as to what effort was made by the Government in 1918 and with what results, and whether any further effort was made by the Government since 1918 to 1927 or the Government thought that abortive effort sufficient for the purpose.

3. For the development of Glass Industry, Industrial Departments of local Governments have been approached, but protection falls within the sphere of central Government of India.

4. We are thankful that Government of India has recognised that reduction in import duty on Soda Ash will be beneficial to Glass Industry and we hope early steps will be taken to enact the reduction.

5. For reduction in railway rates different Railways have been approached, but should the Government of India refuse to help our individual effort to secure reduction in Railway rates?

No. 4.—*Letter from certain Glass Manufacturers in India, dated the 5th September, 1927.*

We beg to acknowledge your letter No. 458-T., dated Simla, the 7th July, 1927, in reply to our application for protection for Glass Industry forwarded to the Government of India in July, 1926. We propose here to deal with the various points raised in the letter under reply with a view to emphasise the urgency of the question being referred to the Tariff Board.

We like to state at the very outset that we are unable to subscribe to the Government's view that there exists no *prima facie* case for such a reference to the Board. In this connection we have simply to say over again

what we have already said in our application that the three general conditions which an industry claiming protection must satisfy are satisfied by the Indian Glass Industry, viz., (1) having natural advantages of raw materials and large and growing market, (2) difficulty to grow rapidly without protection and (3) ability to ultimately face open competition.

As regards Government's contention that India cannot be said to possess "any natural advantage so long as it is dependent on the use of imported Soda Ash" which is alleged to be a very important raw material, we have to point out that the non-manufacture of Soda Ash in India at present does not mean that the Glass Industry should not receive protection at the hands of Government against the keen foreign competition in its infancy. We may quote in this connection the instance of Japan as one of the foremost glass-producing countries of the world in spite of the fact that it relies even to-day almost entirely on the imported Soda Ash. We can cite instances of Japan and Great Britain having succeeded in building strong Cotton Textile Industry in spite of their inability to produce any cotton even to-day. After all, we may further add that the question of the manufacture of Soda Ash is a question of time and there is every probability that Indian Soda Ash will be put on the market in the near future. Again the value of the Soda Ash hardly comes to 8 per cent. of the value of the manufactured glassware. The other important raw materials such as sand, lime, fireclay, coal, etc., are available in India in abundance and they form the bulk of the cost of the finished articles.

As for Scientific and Technical knowledge about Glass manufacture it can be pointed out *en passant* that both of these are available in India to-day to a fair extent and the same will be available to a greater and greater extent as the industry grows. Not only this but some of the gentlemen who are in the glass industry to-day were connected with important missions, one of them was on the American Delegation sent out to Europe to study the condition of European glass industry as far back as 1905, and two others were on the English Delegations sent out to America to study the condition of American glass industry in 1920. There are other experts in glass line, some with English and American experience. It may be further stated that there is one gentleman in this line conducting a big glass factory in United Provinces who has extensive glass experience in England, Germany, Austria, America and Japan and he was for some time actually in charge of an important glass factory in Boston, in United States of America, during his stay there. The Paise Fund Glass Works at Talegaon (Dabhada), District Poona, has been giving training in Glass technology for about 20 years past and it has turned out a number of glass experts available for this industry.

As to Scientific enquiry and expert treatment of the many problems connected with glass manufacture in this country, under present conditions, it cannot be denied that something has already been done in this direction. The very fact that so many factories are working to-day even in such adverse condition is enough to show that something really valuable is being done. Government was at all time welcome to help these humble efforts-but so far nothing has been done by them except the occasional appointment of an expert to scientifically explore the possibilities of glass industry in this country, who reported that the country was too hot for the development of glass industry. The State has not so far taken any lead in the matter, though it is over ten years since the Industrial Commission's report was out and though people in glass line would have welcomed it. The possibilities of the glass industry are, we submit, sufficiently explored almost wholly by private enterprise so far. The very continued existence of these factories is a proof of this and to be brief the industry has come to stay.

As to trained and expert labour, we admit we are suffering from their lack to-day but this is due in the main to the instability of this industry. This is one of the principal grounds on which we have advanced our claims for protection. No steady and sufficient supply of trained and expert labour is possible until the industry becomes stable and gives scope for work for such men. These are to say the least interdependent things.

For the reasons stated above in our original application we request the Government again to refer this whole question to the Tariff Board without further delay. The industry stands in need of protection for at least 10 years, and if it is not to come on the lines indicated in the original representation we want it in the form of an additional 25 per cent. duty on all imported glassware except plate glass, beads and false pearls, which lines have not been tackled so far.

No. 5.—*Letter from the Honorary Secretary, Maharashtra Chamber of Commerce, dated the 16th October, 1927.*

I have the honour to forward herewith a copy of resolution No. 6 regarding protection to the Glass Industry passed at the 2nd session of the Maharashtra Vyapari Parishad for favour of necessary action thereon.

Enclosure to No. 5.

Resolution No. 6.

This Conference presses the Government of India to refer the question of the Glass Industry of the Maharashtra to the Tariff Board for inquiry to locate the causes what are responsible for the want of success. This Conference also requests the Government of Bombay to back their demand for a reference to the Tariff Board.

No. 6.—*Letter from the Government of Bombay, No. 5162—14567-D., dated the 14th November, 1927.*

I am directed by the Government of Bombay (Transferred Departments) to forward for the information and the necessary action of the Government of India, copy of Resolution No. 6, on the question of glass industry of the Maharashtra passed by the 2nd Session of the Maharashtra Vyapari Parishad.

No. 7.—*Letter from the Indian Glass Manufacturers' Association, Ogalevadi (Aundh State), District Satara, No. 4032, dated the 1st December, 1927.*

With reference to my interview with you about the 13th September, 1927, at Simla, I forward you herewith three statements (Appendix I to Correspondence) received from three members of the Association. The figures of the cost of production given in details and the information about labour, market, future possibilities, etc., touched in the short notes speak sufficiently well for the necessity of protection to the Indian Glass Industry. All that will convince you, I believe, that the Glass Industry of India has a strong *prima facie* case for its being referred without delay to the Tariff Board for consideration.

For more elucidation of the case, if such is desired, a Deputation of the Association will be very glad to wait on the Hon'ble Member in charge of the Commerce and Industry Department any time either before or after Christmas.

Meanwhile we shall forward to you such information as will be received from other Members of the Association.

No. 8.—*Letter to the Secretary, Indian Glass Manufacturers' Association, No. 458-T., (2), dated the 13th December, 1927.*

With reference to your letter No. 4032, dated the 1st December, 1927, I am directed to say that the additional information supplied by the three members of the Association will be examined and that before final orders

are passed, the Hon'ble Commerce Member will be prepared to receive a deputation at Delhi. The date cannot, however, yet be fixed.

No. 9.—*Letter from the Secretary, Indian Glass Manufacturers' Association, Ogalevadi, Satara, No. 4120, dated the 8th December, 1927.*

In continuation of my letter No. 4032 of 1st December, 1927, I beg to send enclosed herewith one more Statement (Appendix I to Correspondence) of the Cost of Production of Messrs. The Ganga Glass Works, Ltd., Balavali, District Bijnor, for consideration.

No. 10.—*Letter from the Secretary, Indian Glass Manufacturers' Association, Ogalevadi, Satara, No. 14808, dated the 16th December, 1927.*

In acknowledging receipt of your letter No. 458-T. (2), dated the 13th December, 1927, I have to request you to let me know the approximate time when the date is likely to be fixed.

No. 11.—*Letter from the Indian Glass Manufacturers' Association, Satara, No. O.1666, dated the 28th January, 1928.*

I had requested you by my letter No. 14808 of 16th December, 1927, just to let me know the approximate time when the Deputation of the Association would be required to wait on the Commerce Member and regret to have received no reply. As a matter of fact, the members going in deputation are spread all over India and I would request you to intimate to me the date at least a fortnight ahead so that I may have time to address to the individual members and get them together. I would further request you to at least let me know the probable month so that I may ask the members to expect the call accordingly and arrange their programmes, keeping the call in view.

I am writing this letter only with a view to arrange my programme as well as that of the members suitability.

No. 12.—*Letter from the United Provinces Glass Works, Ltd., No. 79, dated the 14th January, 1929.*

In continuation to our letter No. 26, dated the 1st instant (not received) this is to revive the urgency of our application for protection specially with regard to the manufacture of window glass. This is a new venture in India taken up in 1923 which sustained a heavy loss then. Now that we have restarted the manufacture in last October and are working it at a loss, we request you for an early protection so that we may be able to bring it to a profitable stage. The new industry will not be able to stand in competition with experienced manufacturers of Foreign Countries unless it is supported and protected by the Government for at least 10 years to come. We have done our best and now it is the State to help it.

If you very kindly fix up some time for an interview I will come personally and explain the whole matter.

No. 13.—*Letter from the Indian Glass Manufacturers' Association, Ogalevadi, Satara, No. 2, dated the 4th July, 1929.*

In continuation to my letter of 17th July, 1929, we enclose herewith the statement (Appendix II to Correspondence) of cost of production for 2 years.

We further state that in paragraph 3 of the printed Representation for Protection of Glass Industry, made to the Government of India by us, we have dealt in detail, with all the points establishing the claim of our Industry for protection in accordance with the general conditions to be satisfied by industry before protection could be granted, as laid down by the Fiscal Commission in paragraph 97 of their Report and we trust that the details furnished are exhaustive, clear and convincing.

The various issues raised in letter No. 458-T. of 7th July, 1927, by the Hon'ble Sir Geoffrey Corbett were dealt with in our Association's letter dated the 5th September, 1927, and nothing practically remained to be said now.

The very fact that most of the Glass Factories have been in existence for the last 10 years or more and in some cases for 20 years, inspite of the adverse circumstances, would convince anybody that they would thrive well when protection is given and in course of time defy foreign competition.

The present conditions of the Industry is identical with that of an ailing person who stands in immediate need of treatment and would expire if time is wasted in deciding whether he stands in such need or not. More than 2 years have passed since the case was put in the hands of the Commerce Department and any further delay would be certainly dangerous.

We have, therefore, to request you to kindly expedite the matter of recommending our case to the Tariff Board for inquiry.

No. 14.—*Letter from the United Provinces Glass Works, Ltd., No. 30, dated the 12th August, 1929.*

We beg leave to approach you for the protection of the India Sheet Glass Industry. This branch of glass industry was started in India only last November, amidst all the disadvantages incidental to a new industry. It is but natural that it cannot compete with imported goods, manufactured by experienced manufacturers, equipped with large capital and most up-to-date plants. It will take some time for Indian manufacturers to train their labour and to gather sufficient strength to be able to stand in competition.

The conditions laid down as essential for any industry to satisfy in order to claim protection are fulfilled by this branch of glass industry:—

1. Raw materials such as sand, lime and coal are found in plenty in India. It is only Soda Ash which is imported at present and it is likely that in the near future Soda Ash will also be manufactured in India. There is no dearth of intelligent labour. Of course labour has to be trained in this new industry which will surely take time. The Indian market offers a good field for Foreign manufacturers which is well supported, by import figures of sheet glass for the year 1928, being Rs. 29,86,137. Only if we can take care of 1/3rd of the market, it will be more than sufficient to consume our produce.

2. It is but natural for a new industry to lose in the beginning specially when it has to compete with experienced and well established manufacturers. In the 2 months working in the year 1928 we incurred a loss of Rs. 70,000. But slowly we have reduced our working losses as we have trained our labour, that during the first 6 months in 1929 we find our working loss to be Rs. 30,000. At the present stage it is not possible for this new Industry to face competition with imported goods unprotected.

3. From the experience of 8 months it can be very well expected that in course of time the industry will be able to stand on its own legs unsupported by external aid. We expect that 10 years time will be enough for

us to train our labour so as to bring it to the efficiency stage and to establish our goodwill in the market.

Hence our request to you is to grant 40 per cent. protective tariff to this industry for 10 years. It will not be out of place to mention here that if import duty is removed from Soda Ash it will also decrease the cost of production of our sheet glass. It is significant to note that even U. S. A. have got 50 per cent. protective import duty on Foreign sheet glass and are still trying for a higher protective tariff.

We trust this will receive your sympathetic attention at your earliest.

No. 15.—*Letter to the Managing Agents, United Provinces Glass Works, Ltd., No. 458-T. (2), dated the 18th November, 1929.*

I am directed to refer to your letter No. 30, dated the 12/17th August, 1929, asking for protection to the Sheet Glass Industry in India, and to request that, in order to enable the Government of India to arrive at a decision as to whether a *prima facie* case exists for referring this matter to the Tariff Board, they may be furnished with full information, supported by facts and figures, on the following points:—

- (1) the output capacity of your works,
- (2) the present cost of production,
- (3) the quantities of production and sales,
- (4) the respective sale prices of the local product and of the imported product with which it competes, and
- (5) to what extent your costs are raised at present by the production being lower than the capacity of the works.

No. 16.—*Letter from the United Provinces Glass Works, Ltd., No. 31, dated the 3rd December, 1929.*

In reply to your letter No. 458-T. (2), dated the 18th November, 1929, we beg to state as below:—

1. The capacity of our present plant is to produce up to 25,000 square feet (250 boxes) of $\frac{1}{8}$ " thickness a day.
2. The cost of production from 1st January to 30th June, 1929, has been Rs. 10-11 per box of 100 square feet as the production was only 102 boxes of 100 square feet at an average per day. We are by and by improving the production.
3. The quantity we produced from 1st January to 30th June has been 1,852,000 square feet (18,520 boxes) and we have been able to sell nearly the whole quantity within that time.
4. The present sale price of our goods at an average is Rs. 8-8 per box of 100 square feet and the price of the similar imported articles at Bombay is about Rs. 7-8 per box of 100 square feet.
5. At present the cost of production is Rs. 10-11 per box of 100 square feet, however, if we produce 204 boxes a day our cost of production will come down to about Rs. 7-9 per box and when we are able to produce 250 boxes a day our price will come down to Rs. 7-1 per box. This is according to the present rates of raw materials and wages.

NOTE.—The difference between our cost price of Rs. 10-11 per box of 100 square feet and the sale price Rs. 8-8 per box of 100 square feet will explain the cause of our loss referred to in our application of protection, dated the 14th August, 1929.

Though we are gradually increasing our efficiency of work yet, the loss is unsustainable to the infant industry. Therefore we request you to very kindly take most immediate action for the protection of this industry.

No. 17.—*Letter from the United Provinces Glass Works, Ltd., No. 34, dated the 14th January, 1930.*

With reference to our letter dated the 3rd ultimo it occurs to me that probably you might need the following information in order to complete the case of protection to the sheet glass industry in India.

No. 1.—The average production of November and December 28 was 72 cases a day and the average of September to December 29, 125 cases a day. The places up to which we compete with Foreign goods by keeping our prices at an average of Rs. 8-8 per box of 100 square feet are as under:—

Ajmer, Jhansi, Lyallpur, Benares, beyond these places we cannot compete as the cost at Rs. 8-8 per box *plus* Railway freight from Bahjoi goes more than the Bombay price.

We here below give a statement showing the total (1) cost of production, (2) cost of raw materials spent, (3) cost of soda (the imported raw material) during the same period:—

Total of cost.	January—June.	September—December.
	Rs.	Rs.
1	1,98,200	1,49,900
2	1,40,825	1,10,900
3	41,135	35,200

Our window sheet plant was closed for repair during the months of July and August.

No. 18.—*Letter to the Collector of Customs, Bombay, No. 458-T. (2), dated the 1st February, 1930.*

I am directed to say that the Government of India have received representations from certain glass manufacturers in India asking for protection to lamp globes and sheet glass manufactured by them. In one of these representations the selling price of imported "Dietz Junior" Lantern globes at Bombay, in November, 1927, inclusive of Agent's commission, etc., is stated as Rs. 20 per gross or Rs. 740 per ton (37 gross are stated to weigh approximately one ton). In another the lowest price of imported common Hand Lantern globes at Bombay, in the same month is given as Rs. 21 per gross or Rs. 871-8 per ton, the basis of calculation adopted being that a globe, on an average, weighs 6 ozs. and 5,973 globes, or approximately 498 dozen weigh one ton. The price of imported sheet glass of $\frac{1}{16}$ th inch thickness at Bombay is stated by the applicants to have been Rs. 7-8 per box of 100 square feet in November to December, 1929.

2. According to the Sea-borne Trade Accounts for the month of November, 1929, the average declared value of imported sheet and plate glass works out at about Rs. 14 per 100 square feet, which is considerably in excess of the price of sheet glass as given by the applicants. This difference may however be due to the higher price of plate glass which is grouped with sheet glass in the Sea-borne accounts.

3. I am to request that the Government of India may be informed (1) whether the selling prices of globes and sheet glass given by the applicants are correct and (2) what were the actual selling prices at Bombay in November and December, 1928 and 1929 of imported sheet glass of $\frac{1}{16}$ th inch thickness; and also of the cheapest and lantern globes calculated, as far as possible, on the basis adopted by the applicants.

APPENDIX I TO CORRESPONDENCE.

Enclosure No. 1 to No. 7.

Statement showing the cost of production for the years 1923—26.

(Paisa Fund Glass Works, Talegaon, Dabhoda, District Poona.)

	1923-24.	1924-25.	1925-26.
	Rs.	Rs.	Rs.
1. Raw material including sand, lime, crucibles and other chemicals used usually in small quantities	7,000	7,120	7,052
2. Soda ash	2,458	2,843	4,571
3. Coal fuel	22,235	17,384	15,842
4. Power, including furnace up-keep	3,671	3,412	4,110
5. Manufacturing wages	15,827	16,279	16,297
6. Manufacturing supervision	4,119	4,886	5,259
7. Repairs and maintenance	122	83	51
8. Packing	5,152	4,918	6,034
9. Travelling Agent's commission and expense	4,007	1,751	2,091
10. Expense incidental to office such as postage, telegrams, printing, stationery, Legal, Director's and Auditor's fees, travelling and entertainment and general charges	2,091	2,640	1,526
11. Interest	609	990	1,137
12. Depreciation	1,714	1,737	1,764
	<u>69,005</u>	<u>64,043</u>	<u>65,734</u>

	Ton. Cwt. lb.		Ton. Cwt. lb.	
Total, Glass manufactured ready for sale	66 17 22	77 2 27	
Approximate cost per ton	970	853	

Labour.—Trained and expert labour is amply available here, especially as that is one of the main aims of this works.

Market.—Good markets are available round about this factory within a radius of 400 miles, such as Bombay, Banda, Ahmedabad, Surat, Poona, Nagar, Nasik, West and East Khandesh, Sholapur, Bijapur, etc.

Claim for Protection.—We have shown in our statement the cost price ready for sale per ton is approximately Rs. 850. If these articles were carried to Bombay an extra cost of Rs. 25 per ton will be incurred on account of freight, etc. Adding to this the commission, and the profits to the factory at 10 per cent. each, the total cost of our goods as laid down in Bombay for sale will be approximately Rs. 1,050. Now if we compare this

with the cost of the imported goods, say Dietz Junior which constitutes the main bulk of the sales, we find that our price is higher by about Rs. 310 per ton, for 37 gross of Dietz weigh approximately one ton and the selling price of these in Bombay inclusive of agents' commission, etc., is Rs. 20 per gross, i.e., Rs. 740 per ton. So our articles are handicapped by about 41 per cent. Moreover the present price at which the foreign article is being imported must be giving some profit, at least say 10 per cent., to the foreign manufacturers, which, in order to nullify the purpose of protective duty, the foreign manufacturers may forego. So we demand a protective duty of 50 per cent. instead of 15 per cent., which will enable us to sell our goods in competition with the imported goods. Again this duty would enable us to introduce improved methods which require a great initial outlay; for with the sound market and an assured dividend of even 6 per cent. capital would be forthcoming easily. In this way we can bring down our cost price by at least 40 per cent. within 10 years.

Enclosure No. 2 to No. 7.

Statement showing the cost of production for the years 1925 and 1926.

(United Provinces Glass Works, Ltd., Bahjoi, District Moradabad.)

	1925.		1926.	
	Rs.	A.	Rs.	A.
Raw material except soda	15,146	4	20,492	0
Soda	18,882	0	25,462	0
Coal	49,648	10	60,121	0
Furnace and crucibles and stores, etc.	26,135	10	32,787	0
Packing, cartage, etc.	15,810	4	19,772	0
Direct labour	31,033	10	41,590	11
Indirect labour	26,858	5	33,910	0
Selling expenses	20,305	13	28,191	0
Depreciation	24,348	6	26,379	8
Interest on capital at 9 per cent.	67,303	0	66,258	0
Total cost	2,95,471	14	3,54,963	3
Sale proceeds	2,76,265	10	3,46,881	4
Nett loss if capital is allowed 9 per cent. interest	19,206	4	8,081	15
Weight of glass goods manufactured	400 Tons.		550 Tons.	

Enclosure No. 3 to No. 7.

Statement showing the cost of production of the years 1924—26.

(Ogale Glass Works, Ltd., Aundh State, Bombay Presidency.)

	1924 (17 months).			1925 (12 months).			1926 (12 months).			Cost per ton of production.								
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.			
Raw material including sand, lime, crucibles and other chemicals used usually in small quantities.	26,549	3	6	20,713	1	0	15,307	9	3	119	8	0	128	3	0	103	4	0
Soda Ash	10,727	6	0	8,652	3	3	7,533	1	6	48	4	0	53	8	0	50	13	0
Coal Fuel— Cost	12,805	0	0	7,420	0	0	5,302	0	0									
Freight	28,812	15	4	22,031	0	0	20,055	14	11									
Total	41,617	15	4	29,431	9	9	25,357	14	11	187	5	0	182	4	0	171	0	0
Power including Furnace Upkeep	7,665	1	3	6,924	6	7	5,078	15	0	34	8	0	42	14	0	34	4	0
Manufacturing Wages	26,345	14	6	21,047	7	11	17,260	8	11	118	9	0	130	4	0	116	8	0
(Manufacturing) Supervision	7,650	0	0	5,400	0	0	5,400	0	0	34	7	0	33	7	0	36	7	0
Miscellaneous Expenses in manufacturing	11,553	7	10	8,102	12	0	2,113	0	6	52	0	0	50	2	0	14	4	0
Cartage and Railway Freight	4,439	13	11	2,141	9	1	1,077	4	10	20	0	0	13	4	0	7	9	0
Repairs and Maintenance	Nil			864	2	0	1,922	6	6	Nil			5	5	0	13	0	0
<i>Expenses on Distribution.</i>																		
Packing	20,233	14	4	17,440	8	2	17,601	15	11									
Cartage (for carting goods to the station)	1,275	0	0	900	0	0	900	0	0	167	12	0	174	14	0	200	13	0
Travelling Agents' commission and expenses	15,715	0	9	9,872	3	3	11,274	12	5									

Advertising	3,745 4 0	3,007 13 9	1,392 8 0	16 14 0	18 8 0	9 6 0
Office establishment and Managing Agents' remuneration.	12,716 3 7	8,407 14 9	7,912 3 11	57 4 0	52 0 0	53 6 0
Expenses incidental to office, such as postage, telegrams, printing, stationery, legal, Directors' and Auditors' fees, travelling and entertainment and general charges.	11,979 0 5	8,676 2 8	8,695 13 7	53 15 0	53 11 0	60 0 0
Interest	<i>Nil</i>	1,716 9 3	3,298 1 0	<i>Nil</i>	10 9 0	23 4 0
Depreciation	9,021 5 9	7,989 12 9	9,281 5 5	40 9 0	49 7 0	62 0 0
<i>Works Cost.</i>						
Raw material	167 12 0	181 11 0	154 1 0			
Cost above raw material	446 13 0	457 8 0	392 7 0			
	614 9 0	639 3 0	546 8 0			
Pure expenses on sending the goods to the market	174 10 0	183 6 0	210 3 0			
Expenses on office: Managing Agents' remuneration and everything incidental to office consisting of printing, stationery, postage, telegrams, bank's commission, Directors' and Auditors' fees, travelling and entertainment and general expenses.	111 3 0	105 11 0	113 6 0			
Depreciation	40 9 0	49 7 0	62 0 0			
Interest	<i>Nil</i>	10 9 0	22 4 0			
	940 15 0	988 4 0	954 5 0			
Add Railway Freight to Bombay	23 15 0	23 15 0	23 15 0			
Total	964 4 0	1,012 3 0	978 4 0			
	Tons. cwt. lbs.	Tons. cwt. lbs.	Tons. cwt. lbs.			
Weight of manufactured goods	222 3 108	161 12 37	148 6 32			

Taking 6 oz. to be average weight of one lantern globe, one ton by weight will consist of 5,973 globes or approximately 498 dozen. The lowest price for common Four-Hand lantern globes is Rs. 21 per gross. Calculating at that price the value of 498 dozen comes to be Rs. 871-8-0 while our cost of an equal weight of production in the past three years is shown at the bottom of the table.

It is evident, therefore, the Glass Industry as it stands at present has a *prima facie* case for protection which in the place of 15 per cent. as at present is required to be 50 per cent. so as to enable the Glass Manufacturers to sell competitively with the importing firms and to leave a small margin of profit.

1. *Market.*—Ours being the only factory in the southern part of India down Poona we have a large market at our disposal. But the Bombay Market which is one of the World Markets is many times dumped with all sorts of glassware imported from continental countries and the rates go down. The Bombay Market has another very important aspect that goes to rule the rates and this is the failure of indentors. Such failure leads to auction of the goods arrived in the harbour at a very cheap price lower than the ruling rate and this keeps the market down. Due to the Government's exchange policy importers of foreign glassware are already at an advantage of 12½ per cent. over us and this cannot be lost sight of. From the attached figures it will be evident that we have to sell at a loss if we were to sell in the Bombay Market. We are, therefore, compelled to look to mossful places for selling our goods as there we get a little better rate and that is why we are making both ends meet anyhow with a very small surplus profit. When, however, we decide in manufacturing on a large scale we shall have to sell in the Bombay Market alone and that is why protection is required. To oppose foreign import we must be able to dump competitively and that shows a greater necessity of protection.

2. *Labour.*—Locally trained and expert advice available.

3. *Progress.*—We started the Works in 1914 with a capital of only two thousand rupees and the extensions now reached and the variety and quality of the goods turned out are a sufficient index to the progressive line of work that is being followed all along. Owing to exchange policy of Government and the two aspects of the Bombay Market mentioned above it was found that not much margin was left in the production of glass. We thought it better therefore to take up manufacture of lanterns and lamps as an allied business. When we decided to take up lantern manufacture the rate of the tin lanterns ruled at Rs. 27 per dozen. At the present time it has gone down to Rs. 12, an unprecedented fall (and in this line too protection is desired).

4. *Future Development.*—If, therefore, protection is granted to us we can at once take advantage of the expected improved position and can recast our processes so as to cut manufacturing costs and be self-dependent in the next ten years.

A summary of our reports for the last three years shows that this industry leaves at least 40 per cent. gross profit in the present position and as such deserves protection for further progress and can be sufficiently improved to stand independently.

Enclosure to No. 9.

Statement showing the cost of production for the years 1923-24 to 1925-26.
(Ganga Glass Works, Ltd., Balawali.)

	1923-24.		1924-25.		1925-26.		Remarks.	
	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.		
Establishment and wages	38,748	4 6	43,594	15 9	55,810	3 9	Taking 6 oz. to be average weight of one lantern globe, one ton by weight will contain 5,973 globes or approximately 498 dozen. The lowest price for common Hand Lantern globes is Rs. 21 per gross. Calculating at that price the value of 498 dozen comes to be Rs. 871-8-0 while our costs of an equal weight of the production in the past three years is shown at the bottom of the table.	
Raw materials	44,280	0 3	54,313	8 3	66,114	12 9		
Commission to traders and Agents	6,030	8 0	8,906	6 9	17,214	7 9		
Commission to Managing Director	1,019	0 3	325	0 0	500	0 0		
Repairs	1,186	13 0	2,863	10 0	6,640	2 3		
Rent and taxes	1,540	13 0	637	8 3	2,535	6 0		
Miscellaneous expenses	7,199	8 3	3,747	15 8	3,009	3 6		
Clothing to Staff	707	8 6	133	10 3	474	9 6		
Packing and manufacturing materials, etc.	10,428	4 6	14,945	0 0	21,111	11 3		
Bad debts written off	373	1 0	662	5 6	2,277	11 9		
Charity	25	8 0	15	0 0	11	0 0		
Interest on loans	...		621	9 6	558	14 3		
Depreciation	3,559	3 0	869	14 3	7,638	13 0		
Total	1,15,002	8 3	1,31,651	7 9	1,83,896	15 9		
Weight of Manufactured Goods.	Ton.	cwt.	lb.	Ton.	cwt.	lb.		
	120	0	0	140	0	0		
	Rs.	A. P.		Rs.	A. P.			
Cost per ton (nett ex-factory)	958	0 0	941	0 0	944	0 0	Approximately.	
Freight per maund to various business centres—average per md.—								
To Bombay	2	1 10	Average per ton 43 0 0	43	0 0	43	0 0	
To Calcutta	1	12 2						
To Karachi	2	15 11						
To Delhi	0	8 1						
To Patna	1	1 5						
To Lahore	0	14 8						
To Ahmedabad	1	9 0						
To Peshawar	1	13 3						
Average per ton	43	0 6	1,001	0 6	984	0 6	1,037	0 6

APPENDIX II TO CORRESPONDENCE.

Enclosure No. 1 to No. 13.

Statement showing the cost of production during the years 1927 and 1928.

(U. P. Glass Works, Ltd., Bahjoi.)

Particulars.	1927.			1928.		
	Rs.	A.	P.	Rs.	A.	P.
Raw materials	1,73,763	14	3	1,78,528	14	2
Soda ash	25,011	0	9	29,526	3	3
Packing materials	16,054	3	3	21,103	9	9
Establishment	1,18,515	14	3	1,25,062	10	8
Repairs	20,477	10	6	14,633	4	2
Bad debts						
Postage, stationery and miscellaneous }	16,115	11	11	9,470	9	2
Depreciation	40,081	13	0	34,908	2	0
Total	4,10,020	3	11	4,13,233	5	2
Weight of manufactured goods	Tons 530			Tons 625		
Cost per ton	Rs. 773			Rs. 661		

Enclosure No. 2 to No. 13.

Statement showing the cost of production during the years 1926-27 and 1927-28.

(Paisa Fund Glass Works, Talegaon, Dabhada.)

	1926-27.	1927-28.
	Rs.	Rs.
1. Raw material, including sand, lime, crucibles and other chemicals used usually in small quantities	8,361	9,956
2. Soda ash	3,947	4,053
3. Coal fuel	18,851	19,817
4. Power, including furnace upkeep	3,345	1,881
5. Manufacturing wages	17,258	17,087
6. Manufacturing supervision	5,332	5,187
7. Miscellaneous expenses in manufacturing . . . . .	...	...
<i>Expenses on Distribution.</i>		
8. Packing	2,018	6,084
9. Travelling Agents' commission and expenses	3,066	1,493
10. Office Establishment and Managing Agents' remuneration	1,169	1,894
11. Interest	2,152	2,378
12. Depreciation	1,700	1,638
Total	67,199	71,468
Weight of manufacturing goods	Tons 106	
Cost per ton	Rs. 634	
	Tons 126	
	Rs. 567	

Enclosure No. 3 to No 13.

Statement showing the cost of production during the years 1926-27 and 1927-28.

(Ganga Glass Works, Ltd.)

TABLE No. 1.

Receipts.	Proportion.	Cost per ton delivered at Works.	
		Rate per ton.	
		Rs. A. P.	Rs. A. P.
Sand	7087	14 7 9	10 4 0
Soda	2835	144 0 0	40 13 0
Burnt lime	1134	27 4 0	3 1 6
Nitre	567	313 6 0	17 12 6
Other chemicals	142	450 0 0	6 6 0
Quantity of coal	7.0	16 0 0	112 0 0
Weight of the finished products	1.0	.....	190 5 0

TABLE No. 2.

	1926-27.		1927-28.	
	Rs.	A. P.	Rs.	A. P.
1. Raw material including sand, lime, crucibles and other chemicals, used usually in small quantities	26,073	1 0	35,586	14 6
2. Soda ash	14,259	5 6	19,285	14 0
3. Coal and fuel	22,214	14 9	26,822	4 0
4. Power including furnace upkeep	2,902	7 6	2,492	2 0
5. Manufacturing wages	33,791	13 9	35,895	15 6
6. Manufacturing supervision	6,179	6 6	7,574	5 3
7. Miscellaneous expenses in manufacturing	4,060	12 3	8,973	1 0
8. Cartage and railway freight . . . . .	.....		1,415	12 9
9. Repairs and maintenance	10,021	3 0	10,426	8 9
<i>Expenses on Distribution.</i>				
10. Packing expenses	11,556	7 0	14,233	1 3
11. Cartage for carting goods to the railway station	542	1 3	420	0 0
12. Travelling Agents' commission and expenses including trade discount to traders	15,334	3 6	21,527	14 9
13. Advertising	454	7 0	248	14 6
14. Office establishment and remuneration of the Managing Director or Managing Agent	9,975	10 9	10,582	14 0
15. Expenses incidental to office, such as postage, telegrams, printing and stationery, legal, Directors' and Auditors' fees, travelling and entertainment and general charges	1,925	9 3	3,813	10 0
16. Interest, taxes and rent	924	10 3	5,404	2 9
17. Depreciation	19,956	13 9	19,844	3 9
Total	1,80,172	15 0	2,24,547	10 9
Weight of manufactured goods		Tons 200		Tons 246
Cost per ton		Rs. 900		Rs. 912

Enclosure No. 4 to No. 13.

Statement showing the cost of production during the years 1927 and 1928.

(Ogale Glass Works, Ltd.)

TABLE No. 1.

Recipe.	Proportion of material going into one ton of melt.	Cost per ton delivered at our Works.	
		Rate per ton.	Value.
		Rs. A. P.	Rs.
100 Sand . . . . .	.7178	34 8 0	24-76
42 Soda . . . . .	.3015	142 7 0	42-94
13 Burnt lime . . . . .	.0933	50 0 0	4-66
4 Nitre . . . . .	.0287	308 12 0	8-80
3 Other chemicals, borax, arsenic, manganese . . . . .	.0215	450 0 0	9-68
Quantity of coal	7-0	21 0 0	147
Total . . . . .	.....	.....	237-84

TABLE No. 2.

	1927.		1928.	
	Rs.	A. P.	Rs.	A. P.
1. Raw material including sand, lime, crucibles and other chemicals, used usually in small quantities	11,900	0 0	10,538	6 0
2. Soda ash	6,617	3 0	8,314	1 6
3. Coal and fuel	21,243	12 0	24,138	11 6
4. Power including furnace upkeep	10,934	9 0	9,484	9 9
5. Manufacturing wages	16,177	13 1	15,605	2 0
6. Manufacturing supervision	3,556	11 9	3,585	6 10
7. Miscellaneous expenses in manufacturing	1,532	7 0	972	12 0
8. Cartage and railway freight	562	10 0	321	15 0
9. Repairs and maintenance	2,027	3 8	1,921	14 0
<i>Expenses on Distribution.</i>				
10. Packing expenses	14,169	4 5	13,058	0 0
11. Cartage for carting goods to the railway station	719	11 3	588	4 9
12. Travelling Agents' commission and expenses including trade discount to traders	6,841	6 11	5,269	5 11
13. Advertising	1,496	4 0	998	15 3
14. Office establishment and Managing Agents' remuneration	5,466	0 0	5,400	0 0
15. Expenses incidental to office, such as postage, telegrams, printing and stationery, legal, Directors' and Auditors' fees, travelling and entertainment and general charges	10,828	12 4	8,787	4 8
16. Interest, taxes and rent	8,254	2 6	9,833	8 8
17. Depreciation	Nil		Nil	
Total	1,22,328	0 11	1,18,818	5 10
18. Weight of manufactured goods	Tons 137-5		Tons 144	
Cost per ton	Rs. 890		Rs. 825	

No. 19.—*Letter from the United Provinces Glass Works, Ltd., Bahjoi, dated the 10th March, 1931.*

PROTECTION TO THE SHEET GLASS INDUSTRY IN INDIA.

With reference to the correspondence on the above noted subject ending with your letter No. 458-T. (2), dated the 11th October, 1930, and the interview I had with you yesterday morning I beg to enquire whether the Government of India have decided to refer the question of protection to sheet glass industry, to the Tariff Board and if so, when the reference is likely to be made.

My reason for making this enquiry about definite time is that we have already suffered a loss of about two lacs during the present working of this plant within 2½ years and the Board of Directors of my company have painfully directed to close the sheet glass furnace to save the company from further losses. If this direction is carried out, it will mean that the training and experience of 400 hands gained at a very heavy cost of time, money and energy will go in vain and once the labour is disbanded it will be almost impossible to restart the work; in other words this industry will be lost to India for long time to come. On the other hand if I could be assured that Government of India considers that there is a *prima facie* case for referring the case to the Tariff Board and that the reference will be made shortly, then I would further endeavour to retain the trained labour at a cost of Rs. 2,000 a month, so that if Tariff Board's recommendations are favourable the industry may be restarted, thus saving it from total extinction.

At the end I would once more respectfully urge on you to extend your helping hand to this industry very early so that it is not too late for it to take advantage of the Government protection when and if it comes to it at a time it has lost itself.

No. 20.—*Copy of a letter No. 458-T., (2), dated New Delhi, the 14th March, 1931, from the Joint Secretary to the Government of India, to the Managing Agent, United Provinces Glass Works, Ltd., Bahjoi, District Moradabad.*

PROTECTION TO THE SHEET GLASS INDUSTRY.

With reference to your letter No. 25, dated the 10th March, 1931, on the above subject, I am directed to say that the Government of India have now decided that the question of protection to the glass industry will be referred to the Tariff Board for enquiry. This reference cannot be made immediately, but the Government of India hope that the Tariff Board will be in a position to begin the enquiry in the autumn of the current year.

No. 458-T. (2).

Copy forwarded to—

The Secretary, Indian Glass Manufacturers Association, Ogalevadi, District Satara, and

The Secretary, United Provinces Chamber of Commerce, Cawnpore,

for information in continuation of this Department letter No. 458-T. (2), dated the 11th October, 1930.

No. 21.—*Letter from the United Provinces Glass Works, Ltd., Bahjoi, No. 27, dated the 19th March, 1931.*

I thank you for your letter No. 458-T. (2), dated the 14th instant. The decision of the Government of India to refer the question of protection to glass industry to the Tariff Board has inspired hope of life into the

sheet glass industry struggling for existence. But may I once more draw your kind attention to the fact that the company which has closed the sheet glass furnace on account of its inability to continue the work any longer at a loss, will not be able to retain the trained labour at an expense of Rs. 2,000 per month for very long? Hence I would request you to expedite the matter of reference and thus let the help come when the industry can take advantage of it, because no medicine can be of any avail when life has departed.

No. 22.—*Letter from the Indian Glass Manufacturers' Association, Ogalevadi (Aundh State), District Satara, No. 2341, dated the 21st March, 1931.*

I have to thank you for your sending me copy of letter No. 458-T. (2) of 14th March, 1931, announcing Government's decision to refer the question of Protection to the Glass Industry to the Tariff Board for enquiry and that this enquiry may begin in the autumn of the current year.

No. 23.—*Letter from the Glass and Bangles Industrial Association, Firozabad, United Provinces, No. 1070/E./V/I, dated the 16th April, 1931.*

PROTECTION TO INDIAN GLASS INDUSTRY.

Recently certain circular letters have been addressed by the Director of Industries, United Provinces, Cawnpore, to the members of this Association a copy of which is enclosed herewith for favour of your information. It is stated in the said letter that the question of the grant of protection to the Indian Glass Industry in the matter of glass lamp globes and chimneys has been referred by the Government of India to the Tariff Board. Recently on behalf of this Association Seth Shridharlal and Parshotamdas had the honor of an interview with you and you were pleased to state that the Tariff Board will take the question of protection for the Indian Glass Industry in general which will include all the different branches consisting of (1) Glass Chimneys and globes, (2) Glass Sheet, (3) Glass Block, (4) Glass Bangles and (5) Glass bottles.

I therefore hope that you will be pleased to issue necessary details in this connection when referring the case to the Tariff Board as decided.

United Provinces Glass Works, Ltd., Bahjoi, Moradabad.

A.—WRITTEN.

(1) *A short note on the Manufacture of window glass at United Provinces Glass Works, Ltd., Bahjoi.*

Raw material.	Origin.	Rate factory site.
Sand . . .	Bargarh . . .	As. 7-3 per maund.
	Lohgarh . . .	
	Pauhai . . .	
	Sawaimadhopur . . .	
	Jejon . . .	
Soda . . .	England . . .	As. 7-4 per owt.
	Dharangadra . . .	
Saltcake . . .	England . . .	As. 6-4 „ „
	Germany . . .	
Limestone . . .	Jukehi . . .	As. 9-6 per m ^a und.
	Katni . . .	

All the above raw materials are pulverized, weighed, mixed in different proportions and sent to tank furnace by means of tipping wagons each holding about 1 ton of batch. Very careful attention is given here to avoid entering of any foreign material into the batch. Tank furnace:—

The tank furnace has continuous melting, refining and working ends. The rear portion of the tank is feeding end called dog house through which batch with cullet is fed every half hour by means of hand cart. The batch is shoved on that side corner of the tank towards which the burnt products are passing off, so that the batch may get into the intense heat. The men have to be very careful not to allow any unmelted batch beyond the second burner, else this unmelted batch will pass out the melting end and create stones, etc. As our men are yet inexperienced, often times we lose on this account. The amount of raw material fed depends upon the amount of melted glass drawn by the fourcalt machines working at the drawing end. Therefore the feeding of raw material is determined by the level of glass required and accordingly batch is fed in.

The refining end of the tank is separated from the melting end by a low arch which keeps back the heat. The batch in the melting chamber melts by means of heat produced by burning the preheated gas and air introduced through 4 ports. Gas and air is preheated in the regenerators situated at the ground level of the tank furnace before they are introduced into 4 ports. Gas and air is changed every half hour by means of gas and air reversing valves a fuller description of which is given on page 351 in the text book of glass technology by Mr. F. W. Hodkin, B.Sc., A.I.C. and Mr. A. Cousin, M.Sc., A.R.C.Ss., A.I.C. Gas and air enter the tank through separate canals upto the ends of the ports; as soon as gas and air come in contact with each other, they begin to burn. The burning flame sweep along the width of the tank and the burnt products return to the chimney by the opposite ports through the regenerators. Every half hour reversal of gas and air takes place, the entry ports become exit ports and *vice versa*.

Gas is supplied through sheet iron mains lined inside with fire clay bricks. Gas is made by a battery of 3 water sealed forced draft duff producers using Raniganj high volatile coal. A detailed description is given on page 150 in the text book of glass technology referred above.

Entry of gas through the four ports is regulated by dampers put in through each port; highest temperature is maintained between first and second ports so that the batch may melt easily and quickly.

The melted metal from the melting chamber passes through two sets of floaters which make the glass clear and free from unmelted impurities. From this place the glass passes through a bridge, which is 12 feet, away from the second set of floaters which further refines the glass leaving back any unmelted stuff and makes the glass free from bubbles.

From this place the melted glass diverts its flow in two sides in the drawing end called the center of etrage. From the center of etrage glass flows into the drawing pits that are so arranged that the glass has to pass through the bridges situated on either side of pit so that all the impurities yet coming with glass may be left behind, which are removed off by skimming and ladling out the bad glass. As the molten glass has to be kept at a fixed temperature in the drawing pits, the etrage is kept heated by secondary producer gas made separately by two gas producers and introduced into the etrage by port hole, one on each side of a drawing machine. The amount of gas is controlled by cast iron valves placed before each port. Here also gas and air are reversed every half hour, i.e., the entry ports become exit ports, and *vice versa* by turns. In each of these drawing pits a refractory clay block with a very finely polished slit cut length-wise leaving about 6 inches, is placed. This clay block called Debitois is made to sink in the glass by a pressing mechanism. Two "U" shaped cooling pipes through which a constant stream of cold water passes, are placed over the Debitois to cool the sheet coming out of it.

Over each drawing pit is placed a window glass drawing machine called fourcalt machine which is made of rectangular sheet iron frame with asbestos

lining in between the iron sheets on either side. The machines are 13 feet in height inside which a series of asbestos rollers set in pairs are placed one over the other about 15 inches apart. The rotation of these rollers serve to draw up glass sheet as it is formed, the first pair being situated at about three feet from the surface of molten glass, each roller on the right is given the same rate of movement by means of a vertical shaft and two bevelled gear wheels. The rollers on the other side are carried on bell crank levers with counter poises for pressing the rollers upon the glass. The asbestos rollers are supported in the frame in such a way that the rollers get apart as soon as either any stone comes in the sheet or when a sheet is made thicker. The gearing is driven electrically with a variable speed motor, speed being regulated by a rheostat.

Glass is forced through the slit at desired rate by pressing the debitois. If the pressed debitois is so left, the glass would fill the inside of the debitois to the level of the liquid glass outside it, but the molten glass is caught as it emerges from the opening, by means of a drawing fork and drawn by means of electric motor drive into sheet form. The debitois with its own weight and the pressure applied to it, constantly forces up a ribbon of glass through the slit, which is drawn into a sheet of uniform size.

The rollers of the machine by an upward motion carry up the sheet of glass thus formed. The speed of the rollers is made very slow till the sheet has passed, the first pair of asbestos rollers. The speed is then gradually increased, until the normal rate is established after about an hour's run. The glass sheet gets hard before it comes to the first pair of asbestos rollers. The thickness of the sheet is controlled by the speed of drawing and is not in any way determinable by the pressure from the rollers. The sheet of glass runs along upwards between the rollers and gets annealed while travelling through the machine.

On the top the sheets are cut by making a scratch over the width with a specially hardened steel cutter and by giving an outward push the sheet separates out from the machine at the scratched point. This scratching needs an expert hand, which is achieved in course of time.

The cut sheets are sent down from this floor to the cutting department by means of a lift, where the cutters cut them to the required sizes rejecting defective portions which go back to the dog house for remelting.

Labour required for operating 4 machines are 18 men per shift.

Thickness.—We make from 2 M.M. to 6 M.M. thick by varying the speed of drawing, pressures of debitois and control of temperature of molten glass in the drawing pit.

Output.—The utmost output for 2 M.M. thick glass is about 350 boxes of 100 sq. ft. per day per 4 machines, provided they are all constantly running which is impossible to achieve. Here is the point where a sheet glass factory loses seriously with unskilled labour as it often happens that with a little mistake machine falls and in order to restart it about 8 hours are required to heat the cooled surface glass, to clean the machine and start it again.

These machines are very sensitive, if even a small broken piece of glass falls down from top it adheres to the ungoing sheet and cracks it in the widthwise direction separating it off from its continuity. Therefore every care is taken not to allow the broken glass pieces to stick to the sheet. As our labour is yet raw and inexperienced it will take some years before the full efficiency is obtained.

Our output.—

Year.	How many days working.	Output in boxes.
1929	308	34,980
1930	271	35,200
1931	159	29,817

Cutting Department.—The sheets are brought down from the top floor to cutting floor for cutting to required sizes. Each sheet is placed over the cutting table, the cutter sees the defects first and rejects the defective

portion taking out the largest sizes from the remaining portion of the sheet. The cutting is done by placing a wooden rule and by sliding a diamond pen along it, a fine scratch is made over the glass so dexterously that the scratch should neither be too deep nor too light. Then by giving a downward pressure the glass cracks at the scratch, but if it is not well penetrated into glass it does not crack on the scratch but breaks irregularly. As our cutters are quite new, lot of good sheets are wasted in breakage and also the diamond pens wear out quicker. Therefore we do not get same efficiency in production as in Belgium or Czechoslovakia and our expenses are pretty high in the cost of diamond pen. In those countries the cutters have very many years practice in glass cutting while here we have had to take work from men who had never even seen a sheet of glass in their life before taking job in our works. Therefore it will take some years before we can achieve the same efficiency as is in foreign countries.

Packing.—Packing of sheets is carried out in wooden boxes made of samel wood, which we get from Lalkua and Najibabad costing at factory site at the rate of Rs. 5 to Rs. 5-4 per hundred. superficial sq. ft. Boxes of 50 and 100 sq. ft. are packed as required in different Indian markets. Sizes and number of sheet packed in each box is written on the outside of each case. After packing the box, top is nailed and wire or hoop iron is strapped round it. Packing is a highly specialized art which is acquired after a long practice. For want of good secure packing, our goods reaches destination with higher breakage than imported one and consequently our purchasers have to keep a greater margin.

Despatch.—Full wagon load orders are loaded in the factory siding, while small consignments are sent to railway station for despatch. Here we feel the pinch of careless handling of our packages by the railway staff, who unmindful of our instructions such as "This side up" "Glass with care" throw the packages like bundles of grass, while from importing stations similar small consignments in T. R. Vans are despatched on fixed days making wagons of similar goods for distant stations avoiding transportation, rough handling in transit at intermediate junctions and securing safe delivery at destination. The breakage caused in transit is to our disadvantage in competition with our rivals.

Quality.—Our quality is well appreciated by the Government, Public Works Department, railways, and public at large. We herewith give a copy of the results of test of our window glass carried out at the instance of the Indian Stores Department at Government test house, Calcutta, which will show that the thickness of our glass is uniform and the resistance to temperature is satisfactory. Within a short time of about three years working the factory has been awarded with a number of gold and silver medals and is in possession of letters appreciating the quality of our panes. What we badly need is the higher efficiency in the amount of production which can only be achieved in due course of time.

Competition—The price of imported glass has come down tremendously within last 10 years which will be shown by the table given below:—

Year.	Average price per box of 100 sq. ft. at Bombay Port	
	Rs. a.	
1921-22	13	0
1922-23	13	0
1923-24	10	0
1924-25	10	0
1925-26	9	0
1926-27	7	8
1927-28	7	12
1928-29	7	8
1929-30	7	8
1930-31	7	0

For last 7 months the price has been reduced to Rs. 6-4 per case of 100 sq. ft. The above will show clearly that in only 10 years prices have been reduced to less than $\frac{1}{4}$.

NOTE.—Though the import duty was increased by 5 per cent., i.e., total 20 per cent. from 1st April, 1931, yet it made no change for the better for us as the prices were managed so as to remain as low as Rs. 6-4 per box by Exporting countries.

The figures available of imports contain window panes, sheet glass, plate glass and mirrors. Separate figures of window glass or sheet glass are not available, hence the figures given below include all the varieties named above. However the proportion does not vary very much and one can safely understand from these figures how the imports have been increasing in quantity as the rates have been falling. It is to be noted that the proportion of English import of this article has considerably fallen from Rs. 14,66,597 to Rs. 5,02,665 and the glass imported from England is plate glass and mirrors mostly, while majority of window and sheet glass is imported from Belgium. It is only recently that Germany, Czechoslovakia and Japan have also begun to export this commodity to India.

Year.	Total import.	England.	Belgium.	Germany.
1921-22	37,94,707	14,66,597	22,36,479	—
1922-23	36,91,800	13,34,422	22,93,428	—
1923-24	32,90,056	11,48,122	20,56,390	—
1924-25	33,85,389	10,40,096	22,85,712	—
1925-26	28,17,623	8,76,572	18,49,678	—
1926-27	31,65,539	8,71,500	21,90,843	—
1927-28	29,86,137	8,50,237	18,49,274	1,58,459
1928-29	29,68,255	5,70,782	19,74,760	1,51,719
1929-30	30,97,395	5,02,665	18,73,860	1,55,007
1930-31	23,87,549	—	—	—

NOTE.—1. The figures below one lac are left out.

2. In 1929-30 the import from Japan is 1,66,881 and the import from Czechoslovakia is 1,91,731.

Quality imported in India.—It is to be noted that the quality imported in India is generally fourth class, i.e., 1st, 2nd and 3rd quality are disposed of and the whole cost of production is realized there in those countries. The fourth quality is exported to India as surplus to fetch any price. Thus they can afford to sell the rejected surplus at a nominal price to cover the raw material, packing and transport expenses and have them some margins of profit, while we have to sell every quality from 1st to 4th in India. Thus the competition becomes unfairly hard for us.

Production.—Now with all improvements we have been able to reach a stage of production of 210 cases a day that is if we work continuously for whole year we can produce 76,650 cases, calculating its price at Rs. 7 per case comes to Rs. 5,36,550 while the import for 1930-31 has been Rs. 23,37,549 out of which half is the cost of plate glass and mirrors. Thus the total import of window and sheet glass is probably worth Rs. 12 lacs about and production therefore is about 45 per cent. of what Indian consumes and we can not expect as is generally the case that every body of market controlled by us will purchase only our made goods. Therefore in order that all our production be sold out, we must have at least half of India as our market, i.e., we must be able to control Calcutta and Bombay markets. Presently our cost of production is Rs. 8 per case. Although E. I. R. has been pleased to give very special reduced rates of 12 annas per maund from Bahjoi to Calcutta, yet the railway freight comes

to Re. 1-6-6 per case of 100 sq. ft. weighing about 1 maund 32 seers. Thus each case of our costs at Calcutta Rs. 9-6-6 while the present price of imported sheet glass in Calcutta market is Rs. 6-4 per case. Keeping annas four for cartage and the profit for Calcutta merchants and annas four for our goods being Indian made we can not get more than Rs. 5-12 per case. Thus we need a protection of Rs. 3-10-6 per case which comes to 73 per cent. c.i.f. price. It will be a wise policy to keep the duty 20 per cent. more for the enterprising nature of the importers in dumping goods in India, as is cleared from the table given above.

Now as regards Bombay market, the railway freight from Bahjoi to Bombay is As. 15 per maund, which costs on each case of 1 maund 32 seers in Bombay As. 5-7 dearer than what it costs at Calcutta which comes on c.i.f. price 7 per cent. thus in order to enable us to send our goods to Bombay we need a further protection of $73+7+20=100$ per cent.

It is therefore prayed that the Tariff Board may be pleased to grant a further protection of 100 per cent. making it in all 120 per cent. duty on window panes and sheet glass.

(2) *Test certificates submitted by the United Provinces Glass Works, Ltd.*

True copy.

GOVERNMENT OF INDIA.

INDIAN STORES DEPARTMENT.

Government Test House.

Test Certificate.

No. 1617-C., dated Alipore, the 9th September, 1931.

Issued to Messrs. United Provinces Glass Works, Ltd., Bahjoi P. O., District Moradabad.

With reference to letter No. 15, dated the 1st July, 1931, Reg. No. 59-P. C., dated the 30th April, 1931.

Sample received on 7th July, 1931.

Two samples of sheet glass stated to be $\frac{3}{8}$ " and $\frac{1}{16}$ " thick respectively.

The two samples of sheet glass were tested with a view to ascertaining their resistance to variations of temperature. The following tests were carried out:—

• After being kept at the room temperature (31° C.), the samples were suddenly dipped into water at 0° C. and were kept there for five minutes.

They were then taken out of the water and allowed to attain the temperature of the room before being immersed in water at 60° C. in which they were left for five minutes.

On being removed, the glass sheets were allowed to cool down to the room temperature and were then immersed in water at 100° C. for five minutes.

The final test consisted in transferring the samples from the water at 100° C. to water at 0° C., and in keeping them in the latter for five minutes.

Neither of the samples cracked during the above mentioned operations.

Remarks.—The samples are reasonably uniform in thickness. The presence of flattening marks on the surfaces and the slight ununiformity in thickness cause local distortion of objects seen through the samples, but this is not appreciable.

The resistance of both samples to variations of temperature is considered to be satisfactory.

For results of their tests, see this office Test Certificate No. 1616-M., dated the 9th September, 1931 enclosed.

True copy.

GOVERNMENT OF INDIA.

INDIAN STORES DEPARTMENT.

Government Test House.

Test Certificate.

No. 1616-M., dated the 9th September, 1931.

Issued to Messrs. United Provinces Glass Works, Ltd., Bahjoi P. O., District Moradabad.

With reference to letter No. 15, dated the 1st of July, 1931.

Reg. No. 59-P. C., dated the 30th April, 1931.

Sample received on the 7th July, 1931.

Two samples of sheet glass stated to be $\frac{1}{8}$ " and $\frac{1}{16}$ " thick respectively, each sample being approximately 4" x 4" in size.

Thickness:—

	Sheet glass stated to have a thickness of	
	$\frac{1}{8}$ "	$\frac{1}{16}$ "
Actual mean thickness	0.1255" ($\frac{1}{8}$ ")	0.1028" ($\frac{1}{8}$ ")
Maximum thickness of sheet glass	0.1270"	0.1033"
Minimum thickness of sheet glass	0.1233"	0.1021"

Distortion of object when seen through the samples.—A graduated steel scale was mounted vertically on a platform and the length of a marked portion of the scale was measured by means of a cathetometer.

Each sheet glass was then held vertically in front of and lying against the scale and also 4" away from it, and the marked portion of the scale, as seen through the sheet glass, was measured, in each case, by means of the cathetometer.

The result of these measurements are given below:—

Actual length of the marked portion of the steel scale, as measured by a cathetometer.	Length of the marked portion of the steel scale, as measured by the cathetometer, when			
	the $\frac{1}{8}$ " thick sheet glass was lying vertically in any position		the $\frac{1}{16}$ " thick sheet glass was lying vertically in any position	
	against the scale and in front of it.	in front of and 4" away from the scale.	against the scale and in front of it.	in front of and 4" away from the scale.
2.00"	2.00"	2.00"	2.00"	2.00"

Visual Examination.—The $\frac{1}{8}$ " thick sheet glass contains a few small air bubbles, and many flattening marks on one surface.

The $\frac{1}{4}$ " thick sheet glass contains a few small air bubbles and several flattening marks on one surface.

For results of tests to determine the resistance of the samples to variation of temperatures and remarks, see this office Test Certificate No. 1617-C., dated the 9th September, 1931, enclosed.

(Sd.) Superintendent,
Government Test House.

(3) Letter dated the 14th December, 1931, from the United Provinces Glass Works, Ltd., Bahjoi, District Moradabad, to the Secretary, Tariff Board.

As desired I am sending herewith the balance sheets* for last 5 years. The balance sheet of 1928, 1929 and 1930 show the resultant profit and loss of chimney plant and sheet glass. In fact what we have been earning in chimney plant, we have been losing that amount and more in sheet glass.

I am also enclosing herewith copies of the answers to Board's questionnaire.

Answers to questionnaire of Tariff Board.

NOTE.—According to the decision of All-India Glass Manufacturers' Association not to press the point of protection for blown wares at present, my answers relate only to the window panes and sheet glass manufacture.

1. Our works are owned by a public registered (limited) Company.
2. The whole of the capital is held by Indians; all 7 Directors are Indians. One of them is a Managing Agent.
3. (a) We started the manufacture of chimneys and globes in October, 1916.
- (b) We started the manufacture of window panes in November, 1923, but owing to sudden lowering of the imported prices and some defective working of our plant, we had to close it. We again started in October, 1928.
4. The achievable full capacity of our works is to make 321 boxes of 100 sq. ft. per day of window glass $\frac{1}{8}$ " thick; taking 330 working days, the outturn comes to 1,05,930 boxes in a year, valued at Rs. 7 per box (the present average market rate) comes to Rs. 7,41,510 per year as our utmost output when working the present plant in full capacity.
5. (a) We manufacture the following kinds of glassware besides window panes and sheet glass:—

- (1) Chimneys and globes of all kinds.
- (2) Jars.
- (3) Tumblers.
- (4) Pressed dishes.
- (5) Ink stands.
- (6) Chandeliers.
- (7) Some scientific apparatus like troughs, Petry dishes, cylinders, etc.
- (8) Bottles and phials.

- (b) The outturn of window panes has been:—

In the year—	Cases.
1928	3,000
1929	34,980
1930	35,200
1931	29,830

6. The factory is situated at Bahjoi.

(a) It is not advantageously situated in respect of vicinity to areas from which our principal raw materials are drawn as we receive sand from Bargarh, 363 miles from Bahjoi.

Sand from Sawaimadhopur—241 miles from Bahjoi.

Lime from Maihar—459 miles from Bahjoi.

Soda from England.

Soda from Dharangadra—362 miles from Bahjoi.

Soda from Russia.

Soda from Africa.

But we are advantageously situated for packing material available right on the spot.

(b) We are neither advantageously situated in respect of coal supply which we get from Raniganj fields—a distance of 695 miles from us.

(c) We are advantageously situated in respect of market.

The important markets are:—	Miles from Bahjoi.
Delhi	130
Lucknow	200
Cawnpore	243
Agra	113
Bareilly	54
Moradabad	38
Rampur	55
Aligarh	51
Meerut	121
Muttra	107

(d) We are also advantageously situated in respect of labour which is abundantly available in this vicinity at a very low rate of As. 4 per head, most of the glass factories in North India have got trained labour as well as some of the ordinary labour from Bahjoi.

(e) Situation is on broad gauge line.

7. In my opinion the most important factors in selecting a site for a glass factory in India are:—

- (1) Nearness of market as the railway freight on manufactured goods is much higher than the railway freight on raw material and coal, etc., distance for distance.
- (2) *Labour*.—Should be abundant and permanent at comparatively low rates.
- (3) Should be as near as possible to railway station as we have to deal with bulky goods.
- (4) Should be in the vicinity of raw materials and coal.
- (5) Should be a place having good healthy climate and if possible free from heavy winds.

8. Our products are nearly equal in quality and appearance to imported window glass. They are taken better than Japanese imported goods and in some cases better than German goods also, but they do not command the same price for the following causes:—

- (1) We have disadvantage of higher breakage in transit as our goods going in small lot is roughly handled at transshipment stations while from importing places the goods is sent in such a way in brake wagon that the transshipment at junction stations is mostly avoided.

(2) The word "Indian made" often carries an idea of comparatively low price and market always expects that they should be given Indian goods at lower rates.

9. We keep on our work all year round except for hot or cold repairs. The only other cause of stopping is heavy stock whenever it so happens. Whenever the production is stopped surely the cost of production is increased, as some of the trained labour and highly paid staff has to be retained and this expense is distributed on the production. Then at every start 200 tons coal is spent in initial heating besides labour. This also swells the cost of production.

10. The raw material used in our works are sand, soda, lime, saltcake, fireclay and coal.

11. The annual requirement of our raw materials shall be if we work in full capacity of the window glass plant for the production of 1,05,930 cases of 100 sq. ft. $\frac{1}{16}$ " thick—

Sand	1,02,350 maunds.
Soda	32,752 "
Lime	29,641 "
Saltcake	76,762 "
Fireclay	} 15,000 "
Firebricks	
Coal	10,000 tons.
Packing materials Rs. 95,337 at Rs. 90 per 100 cases.	

12. For the production of 1 ton of window panes of $\frac{1}{16}$ " thickness the raw materials required are:—

Sand	1,623 lbs.
Soda	519 lbs.
Lime	471 lbs.
Saltcake	122 lbs.
Coal	3.1 ton this year. (1931).

Name of raw materials.	Places from which it comes.	The distance up to Bahjoi.
		miles.
Sand	Bargarh	363
"	Lohgarh	347
"	Panhai	380
"	Sawaimadhopur	241
"	Jaijon	367
Soda	England . . . . .	...
"	Russia . . . . .	...
"	Africa . . . . .	...
"	Dharangadra	632
Saltcake	England . . . . .	...
"	Russia . . . . .	...
"	Germany . . . . .	...
Limestone	Maibar	459
"	Jukehi	486

14. Sand is found in the form of big boulders, naturally decayed and soft enough to crumble within fingers, it is generally transported by carts and brought to railway station, from which place it comes to our works by goods train.

Soda, saltcake, lime, coal, fire-clay, fire-bricks and planks come to our works by goods train.

Crates, grass, ropes, mattings are brought by suppliers in cart or by human labour, as these material comes from short distances.

15. No royalty is paid on any of our raw materials to Government or private persons.

Name of raw materials.	Places of origin.	Rate at station of origin.	Railway freight up to Bahjoi.	Miscellaneous charges.	Remarks.
		Per maund. Rs. a. p.	Per maund. Rs. a. p.	Rs. a. p.	
Sand . .	Lohgarh	0 3 6	0 2 9	0 0 3	Don't use.
	Bargarh	0 4 0	0 3 0	0 0 3	
" . .	Panhai	0 4 0	0 3 3	0 0 3	Don't use.
	Sawaimadhopur	0 3 6	0 3 6	0 0 3	
" . .	Jaijon	Does not	suit due to	high price.	
Lime . .	Maihar	0 1 8	0 6 1	0 1 9	This includes grinding charges also.
	Jukehi	0 1 8	0 6 5	0 1 9	
Soda . .	Dharangadra	Per cwt. 6 2 0	Per cwt. 1 1 10	..	Bags cover.
	England	6 0 0	0 14 0	..	Miscellaneous charges.
	Russia	6 6 0	0 14 0	..	
	Germany	6 6 0	0 14 0	..	
Saltcake . .	England	5 2 0	1 1 10	..	
	Russia	5 2 0	1 1 10	..	

17. We hold no concession as regards the supply of raw materials.

18. We are using soda ash imported from England, Africa and Russia and saltcake from England and Russia. The present rate of soda ash is Rs. 6-6 per cwt. f.o.r. Howrah. The custom duty payable on soda ash and saltcake is 20 per cent. plus 5 per cent surcharge.

19. Soda ash and saltcake are the only raw materials imported which are also being manufactured at Dharangadra. I do not know their cost of production.

20. The quality of sand is fairly good. Chemical analysis of several Indian sands used in glass industry are given below:—

	SiO ₂	Fl ₂ O ₃	Al ₂ O ₃	CaO	Mgo.
Bargarh	98-97	·51	·51	·51	—
Sawaimadhopur	98-98	·62	—	·40	·01

Limestone.—Good quality of limestone is got from Maihar and Jukehi having the following analysis:—

Cao	53.6
Mgo	1.0
Fe ₂ O ₃ & Al ₂ O ₃	.4
Insoluble matter	1.50

Dolomatic limestone is essential in window glass making, especially with our process where prevention of devitrification of glass is very important. But the lime stone used by us at present is low in magnesia contents. There are other varieties, but they have to be experimented upon, which needs time and money.

Coal.—The coal of Raniganj field high in volatiles, serves our purpose. Analysis of coal used by us is as below:—

	Fixed orbn.	Vol. orbn.	Ash.	Moisture.	Calorific Value.
Dhemomain	58.28	31.92	9.8	—	7281
Sreepur	59.15	33.35	7.5	2.39	7460
Parbellia	56.00	32.75	11.25	1.35	7300
Bara Dhemo	55.70	32.80	11.60	2.25	7194

Fireclay.—We use German Grossalmeroder clay blocks in tank furnace for places where the temperature is highest and the blocks undergo severe attack of molten glass, but with proper investigations, a suitable clay mixture can be made out of Indian fireclays. This again needs elaborate experiments. In England the University (Glass Technology Depôt) of Sheffield took up similar work when during war time they felt a pressing necessity of having their own fireclay material and now the British manufacturers are able to make fireclay material of equally good quality. For other parts of tank, Indian fireclay serves our purpose quite all right.

The chemical analysis of some of the fireclays in India are given below:—

	SiO ₂	TiO ₂	Al ₂ O ₃	Fe ₂ O ₃	Cao	Mgo	Alkal	Loss in ignition.
Burn and Co., Jubbulpore.	6.18	1.47	26.26	1.19	.41	.55	1.18	7.29
Kumardhubi Fireclay and Silica Works, Kumardhubi.	63.18	..	24.89	.95	.33	.10	..	9.00
Behar Fire bricks and Potteries Ltd.	59.05	1.77	33.64	2.56	trace	.8	0.5	11.6

22. In the beginning for a year, we used imported debetois blocks, later on we have been using our own made, with satisfactory results.

The composition of raw fireclay is given above in reply to No. 20.

Burnt clay.—We chip off the outer skin of old used debetois, grind and sieve it in 40 mesh sieve and use it as grog.

Raw and burnt-clay after sieving are mixed in proper portion, water is added to make it plastic. This wet clay mixture is allowed to age for at least 60 days during which time the clay is turned over and pugged by human feet several times. When the clay has properly matured, the potter

builds the bottom of the debetois by taking the clay in rolls, throws them forcibly upon a board and spread the clay out by pressing motion with the right hand palm and then by a reverse drawing motion with finger tips. This process is continued till a thickness of about 4" and proper length and breadth is reached when the bottom reaches the required length and breadth and proper thickness, the clay is cut to proper size and the board is lifted, turned over and thereby the debetois bottom is reversed on another wooden board. The top of the second board over which the debetois is completed is covered with coarse grog about one inch thick which enables the debetois to creep or shrink easily during the drying period. The first overturned board is separated out from the clay by drawing a thin wire across the board. Over this wet clay slab, a wooden mould is placed and the inside of the mould filled with clay by taking clay rolls and spreading it by means of right hand palm pressure and then by a reverse drawing motion by means of finger tips, all the time care being taken that no air remains in between two layers. When the mould is filled with clay, it is covered with a wet gunny bag so as not to allow it to dry too rapidly. After 3 days or so when the clay is able to stand its own weight a slit is made by pressing a solid iron template into the body of the debetois. When the template has sunk well enough the surplus clay is removed off the top, polished by means of a trowel and then the template is lifted up when it leaves the slit about $\frac{1}{30}$ " smaller than the required width. The mould is removed off, all the sides of the debetois are well polished and then covered with wet gunny all round so that outside surface may not dry too quick and thereby crack. After about 3 weeks or so it is lifted edgewise in lengthwise direction so that the bottom may have a chance to dry. After about a month when it is dried, it is placed upside down and the bottom is shaped, the slit is cut off right through its thickness, and all the surface well grinded. It is again turned down so that the top comes up. Now the slit is grounded to its required dimensions, then polished very smooth by wetting the edges and rubbing a special red stone over the surface and then by a backward and forward motion of a specially shaped iron the surface gets smooth like the surface of glass. The making of slit is a very special art as it has to be correct to $\frac{1}{32}$ ", well polished and absolutely straight in edges. When the debetois slit is cut to size and polished it is further allowed to dry for a month about, when it is baked in a kiln before it can be placed in the glass for drawing sheet glass.

23. Please refer to reply under Question No. 20.

24. We imported six Belgians as the several processes require highly specialized supervision. The service of one of them was dispensed with after 4 months, of 2 after one year and of 3 after 18 months' working. During this time we trained our labour and replaced the Belgians as they were too dear.

25. At present no imported labour is employed. During the period of first 18 months' working we substituted our local labour for imported labour; they still lack efficiency of experience and practice.

26. One or two extra workmen in each shift are kept with the skilled workmen for training. The experts and supervisors take special care in watching that the new workmen are given chance of working every now and then as opportunities arise. We have found that the Indian workmen improve with training quite well.

27. Our fourcalt machines are most up-to-date and automatic machines and no further skilled labour can be replaced by automatic or semi-automatic machines.

28. As stated under reply to Question No. 27 no further skilled labour can be replaced by machinery.

29. High percentage of humidity in the air or the high temperature at which the different processes in window glass manufactures are carried on, does not affect the efficiency of Indian labour.

30. Wages paid during 1930, Rs. 52,728.

(b) The average rate of wages paid are as below:—

Gas producermen	As. 5-6 per day.
Tank teaser	As. 6-0 „
Machine attendants	As. 6-0 „
Machine cleaners	As. 6-6 „
Lift attendant	As. 6-0 „
Top men	As. 7-0 „
Cutters are paid on piece wage system and commission, at an average	Rs. 30 per month.
Packers	As. 6-0 per day.
Carpentors	Rs. 25 per month.

(c) Total number of workmen employed in 1930 was 250 men per day on an average.

31. Workmen who come to work, from Bahjoi town and surrounding villages, reside at their own houses, while others who comes from distant places are accommodated in the factory quarters which are 50 in number, free of rent.

For the welfare of our employees we have the following:—

- (1) Social club where meetings are held once every week.
- (2) Bathing facility.
- (3) Co-operative Society which gives loan at a very low rate of interest of 2 pies per rupee, money is deducted in small monthly instalments. Corn and necessary seasonal articles are purchased and sold to members at a very nominal profit.
- (4) Playing ground.
- (5) Free medical attendance which includes whole time Homeopathy dispensary attached to the factory, Ayurvedic Vaidya and District Board Doctor.
- (6) Night School.
- (7) Library.

32. Coal is brought from Raniganj fields.

Distance and freight of different stations is as below:—

Station.	Distance.	Ry. freight.
Sitarampur	678 miles	As. 8-5 per ton.
Mugma	668 miles	As. 8-3 per ton.
Asansole	684 miles	As. 8-3 per ton.
Ondal	700 miles	As. 9-5 per ton.

The average cost of coal delivered at the works is Rs. 15 per ton.

34. Coal is gasified before it is used in the tank furnace. Coal cannot be used directly as it will not produce the required high temperature. Moreover a better combustion is obtained by gas, and waste heat is utilized in reheating the incoming air and gas.

35. Electric power is used in the works for running the fourcault window glass machines, working lifts to bring down sheets from top floor to the cutting floor, pulverising limestone, plank sawing and cutting machines, sand blasting machine, fan blowers and mechanical workshop.

Steam is used for gas producers and running engines to create electric power.

36. At present we use 2 tons of coal for 1 ton of melted glass and 3 tons of coal for 1 ton of finish window panes.

37. We consider that our works are sufficiently large to ensure economical working but as our labour is yet raw it will take some time before we can achieve the same efficiency as is in foreign countries. The smallest unit for producing window glass economically is about 300 boxes per day.

38. Description of the plant is already in our report sent on the 13th November, 1931, please see page Nos. 1 to 4.

39. We do consider that the Machinery and other equipment that we have are most up-to-date. Our method of manufacture is identically the same as used by our competitors in Belgium, Czechoslovakia, Germany and Japan. The process of manufacture is very efficient and we shall be able to compete with foreign manufactures in course of time when our labour gets efficient and when we are able to sell all our output of working to full capacity all the year round.

40. We have not installed any new machinery or plant since we started our window glass plant in 1928 except that we added the fourth fourcault machine in 1930 December.

41. No, the conditions of manufacture do not vary materially as compared to our competing countries. Our method is absolutely the same as theirs.

42. We have imported the fourcault machine from Belgium but all the wearing parts of the machine are made right at our works, even the asbestos rollers are made by us, asbestos sheets are purchased from Calcutta and Bombay merchants.

43. There is only one window glass manufacturing factory in India which is situated at Bahjoi and its production has been as given in reply to Question No. 5 (b), page 1.

44. The principal markets--

	Distance from Bahjoi.
	Miles.
Delhi	130
Ambala	209
Jullundur	315
Amritsar	363
Lahore	396
Rawalpindi	575
Lyallpur	486
Ferozepur	454
Peshawar	683
Agra	113
Cawnpore	243
Allahabad	324
Jaipur	295
Lucknow	200
Gorakhpur	370

45. East Indian Railway charges 1st class rates.

Great Indian Peninsula Railway, 4th class rates.

Bombay, Baroda and Central India Railway, 2nd class rates.

North Western Railway, 4th class rates.

Bengal and North-Western Railway, 2nd class rates.

Bengal Nagpur Railway, 2nd class rates.

We have no advantage in respect of railway freight rate over imported goods except that East Indian Railway is allowing us 1st class rates against 4th class on imported goods and Bombay, Baroda and Central India Railway, Bengal and North Western Railway and Bengal Nagpur Railway allow 2nd class on our goods against 4th class on imported goods.

45. (b) Railway freight in India is charged on gross weight ratio of gross weight to nett weight comes to about 7.2 to 6.

46. Names of places.	Railway freight from Calcutta.	Railway freight from Bahjoi.
	Rs. A. P.	Rs. A. P.
Gorakhpur	1 7 10	0 13 1
Chapra	1 3 11	0 1 1
Muzaffarpur	1 2 11	0 1 5
Chaibasa	0 11 3	1 12 2
Purulia	0 10 3	1 8 5
Ranchi	0 13 9	1 9 9
Sambalpur	1 3 4	1 15 3
Raigarh	1 4 1	1 14 6
Raipur	1 11 11	1 13 11
Nagpur	1 14 4	1 15 2
Cuttack	0 14 5	2 0 5
Berhampur	1 4 7	2 4 8
Vizianagram	1 11 6	2 9 5
Allahabad	1 11 1	0 10 9
Benares	1 6 10	0 12 10
Gaya	0 15 9	1 1 1
Patna	1 2 2	1 1 5
Calcutta	—	1 10 6
		(Special 0 12 0)
Names of places.	Railway freight from Bombay.	Railway freight from Bahjoi.
	Rs. A. P.	Rs. A. P.
Ajmer	1 13 5	0 12 2
Ahmedabad	1 1 5	1 6 10
Nagpur	1 11 10	1 15 2
Bombay	—	1 15 6
Names of places.	Railway freight from Karachi.	Railway freight from Bahjoi.
	Rs. A. P.	Rs. A. P.
Multan	1 14 3	1 11 0
Daryakhan	2 4 9	2 0 0
Bannu	3 1 8	2 2 5
Karachi	—	2 13 6

47. It will be possible to export window glass from India to foreign countries such as Afghanistan, Baluchistan, Kashmir, Nepal when we can supply them at 17½ per cent. cheaper than the importers do as our Government gives a refund of 12½ per cent. to these countries on imported goods and nothing on our goods.

48. India has keenest competition with Belgium, Germany, Czechoslovakia and Japan. The competition is keenest in all importing towns for window panes and sheet glass.

	As. P.	As. P.
49. 1927	7 12	—
1928	7 8	8 12
1929	7 0	8 6
1930	7 0	7 15
1931	6 4	7 9

50. I have no accurate information about c.i.f. price. The custom duty up to March, 1931, was 15 per cent. From 1st of April it was increased to 20 per cent., from October, 1931, a surcharge of 25 per cent. of tariff is levied further.

51. So far most of the Indian Railways issue tender giving preference to the supply of imported goods although our goods was approved by India Store Purchase Department in July, 1929. During 1931 India Government and other public bodies have purchased Rs. 2,000 goods from us. United Provinces Government has issued a Notification No. 79, dated the 2nd October, 1931, asking all Government and semi-Government bodies to purchase window panes and sheet glass from United Provinces Glass Works, Ltd., Bahjoi, but so far we have received very few small orders.

52. The Indian manufacture is at a disadvantage in respect of—

- (1) Labour as it is very inefficient yet.
- (2) Raw materials as soda and salt cake are imported and are levied 25 per cent. duty at present which falls on the manufactured goods.
- (3) The general practice that merchants expect Indian goods cheaper than the imported goods.
- (4) Custom duty, in other countries the import duty is higher than in India.
- (5) Quality, in India generally 4th quality is imported for which the foreign manufacturers are satisfied to receive the cost of material and a little more in fact they realize their cost of production and some profit on 1st, 2nd and 3rd quality in their own country. It is only the surplus which is dumped in India.

53. Yes, because the 4th quality is exported to India and therefore the price is uneconomical.

54. (b) & (c) The block value of land and buildings of window glass plant is Rs. 1,12,480.

(d) Block value of plant and machinery is Rs. 5,82,485.

(e) The capital generally remains invested in raw material, melted glass and manufactured goods as well as tools and miscellaneous stores is about a lac.

55. The value given in (b), (c) and (d) above includes the amount depreciated.

56. If another factory be built independently afresh the cost of the buildings, machinery and plant would be much more than we have invested because:—

- (1) The iron material purchased from the Government surplus stores cost us not even 1/3rd of the value of new material.
- (2) We got a great help of tools from our chimney plant for the erection which was not added to its cost.
- (3) The staff working in the chimney plant was engaged for the supervision of construction while they were paid by the Chimney plant.
- (4) As our two experts had very good chance of working in 3 different works in Charleroi, Belgium, and as all the blue prints were made in their presence, they effected appreciable economy in construction of work.
- (5) The two experts, being sons of the Managing Agent, are not paid as much as they will be paid if they work elsewhere.
- (6) Our two experts could get hold of 6 Belgium workmen (one of them was an engineer) at a very low wages. In fact none of the workmen who have so far gone out to foreign countries for starting window glass factories have accepted such low wages.

This was entirely due to the fact that all these Belgians came to this factory on account of friendly relations that they had while the experts were working with them.

- (7) Due to low rate of exchange in 1928 the Machines cost only 73 per cent. price of what it will cost to-day owing to increase in duty and exchange.
57. No dividend is paid since this plant was restarted in 1928.
58. The factory has no debenture loans.
59. Reserve fund up to 1927 has been Rs. 25,000.
60. No replacement is necessary as our plant is up-to-date. No extension is contemplated as our plant is big enough and we find it hard to dispose of its production.
61. The two forms duly filled in are annexed at the end.
62. The present per cent. of breakage at the different stages is as below:—
5 per cent. Fourcault Machine sheet separating department.
12 per cent. in cutting department.
2 per cent. packing department.
When we started the breakage in 1929 was—
15 to 20 per cent. sheet separating department.
15 per cent. in cutting department.
4 per cent. packing.

Yet our percentage of breakage is higher by about 10 per cent. as in foreign countries the total breakage does not go up more than 10 per cent. against 19 per cent. of ours at present. This will take yet several years to attain the same efficiency as in foreign countries.

64. The following are the rates of depreciation allowed by the Income-tax authorities:—

	Per cent.
Buildings	2½
Machinery	10
Tank furnaces and lehrs	10

Yes, we think these are suitable.

65. (a) The following are average figures of stocks we generally hold during working period:—

Sand	3,000 mds.
Soda	1,000 mds.
Saltcake	500 mds.
Limestone	1,000 mds.
Planks	10,000 sq. ft. to 6,000 sq. ft.
Coal	450 tons.

Finished goods worth Rs. 10,000 to 90,000.

(b) Rs. 20,000 is about the average outstanding in the sales of window glass.

66. We have only one head office at Bahjoi under the control of Managing Agent.

67. All the three conditions laid down by the Fiscal Commission are very well satisfied to claim protection for window glass industry.

(a) Quite an abundant supply of all the raw materials (sand, limestone, coal and fire-clay) is available in India, except soda which is also being manufactured at Dharangadra, labour supply is also plentiful and cheap power is available. In fact after some time we hope to get Hydroelectric supply which will be about 25 per cent. cheaper than our

present cost. Our Indian market imported window panes and plate glass from abroad worth Rs. 23,87,549 in the year 1930 and 1931. If we can take care of even half, it is enough for us.

(b) In foreign countries the labour is highly specialized and is of long standing. In order that we may be able to come to the desired standard of efficiency to stand in competition, our labour has to be trained which will take some time, hence it is very imperative that protection to this industry be given without which it cannot survive the losses it has already incurred. We made the first attempt in 1923 with the help of one American expert. The United Provinces Government also helped the industry with a loan of one lac. But we did not succeed and this branch had to be closed after a loss of Rs. 90,000 about.

The company continued its investigation and efforts to make this industry a success, sent out for training two highly technically trained young men to Europe, imported six Belgian experts to safeguard against all possible difficulties, purchased an up-to-date Fourcault plant and restarted the manufacture of sheet glass in October, 1928, with a further investment of 1½ lacs. In the working of 1928 we had to incur another loss of 70,000 in three months. We gradually reduced our expenses, trained our labour, yet we had to suffer a further loss of about Rs. 50,000 in the working of window glass plant during 1929, 12 months.

We have been trying our best to increase the efficiency of our plant and reduce our expenses all round, however we are not yet able unprotected to make both ends meet even with the experience of 2 years again suffered a loss of Rs. 30,000 in the year 1930.

As regards 1931 we cannot say how much loss there will be but we know that we have worked only 5 months and 9 days in the year owing to heavy stocks collected and that we cannot reasonably expected to make the two ends meet. From this you will see that we have done all that could be possible for us, now it is for the Government to infuse new life into this industry by protecting it.

(c) Yes, after our labour gets trained up we shall be able to compete with the foreigners without protection. As we get experienced and increase our production efficiency, our cost of production will go down and wastage and breakage will be minimised and we shall be able to stand the competition unprotected.

68. In order that we may be able to compete 100 per cent. duty should be levied on imported goods as explained on page 36 of our report already submitted, a copy of the relative page is reproduced below:—

Protection.—Now with all improvements we have been able to reach a stage of production of 210 cases a day that is if we work continuously for whole year we can produce 76,650 cases, calculating its price at Rs. 7 per case comes to Rs. 5,36,550 while the import for 1930-31 has been Rs. 23,37,549 out of which half is the cost of plate glass and mirrors. Thus the total import of window and sheet glass is probably worth Rs. 12 lacs about and our production therefore is about 45 per cent. of what India consumes and we cannot expect as is generally the case that every body of market controlled by us will purchase only our made goods. Therefore in order that all our production be sold out, we must have at least half of India as our market, i.e., we must be able to control Calcutta and Bombay markets. Presently our cost of production is brought down to Rs. 8 per case. Although E. I. R. has been pleased to give very special reduced rates of As. 12 per maund from Bahjoi to Calcutta yet the railway freight comes to Rs. 1-6-6 per case of 100 sq. ft. weighing about 1 maund 32 seers. Thus each case of ours costs at Calcutta Rs. 9-6-6 while the present price of imported sheet glass in Calcutta market is Rs. 6-4 per case. Keeping annas four for cartage and the profit for Calcutta merchants and annas four for our goods being India made, we cannot get more than Rs. 5-12 per case. Thus we need a protection of Rs. 3-10 per case which comes to 73 per cent. on c.i.f. price Rs. 5. It will be a wise policy to keep the duty 20 per cent. more for the

enterprising nature of the exporter in dumping goods in India as is clear from the table given above and the prices maintained by them during last 5 years as shown in answers to Question No. 49 although import duty is increased in April, 1930.

Now as regards Bombay market, the railway freight from Bahjoi to Bombay is As. 15 per maund which costs on each case of 1 maund 32 seers at Bombay As. 5-7 dearer than what it costs at Calcutta which comes on c.i.f. price 7 per cent. thus in order to enable us to send our goods to Bombay we need a protection of $73+7+20=100$ per cent.

(b) The protection may be given by imposing a protective tariff or by refunding import duty on soda ash and salt cake, or help in any other form such as allowing a bounty to our industry, to enable us to reach Bombay and Calcutta markets where we can dispose of our increased output.

(c) The protection is required for window panes, sheet glass, mirrors and plate glass.

Although window panes, sheet glass and mirrors only are manufactured in India, all the same plate glass should also be protected, as otherwise plate glass will take the place of sheet glass and will decrease its consumption. Moreover if plate glass is protected this industry will also be encouraged and there is every likelihood of this branch being taken up shortly in India.

69. If protective duty is levied on window panes and sheet glass the following Indian raw materials will be utilized in increased quantity which are plentiful in India:—Sand, Limestone, Coal, Fireclay.

Besides the above we shall be able to consume saltcake, soda ash and planks in a larger quantity. There is no industry which will be at a disadvantage if protection is given to this industry.

FORM I.—Statement showing the total expenditure incurred at works on the production of glass during the past three years.

	1929.	1930.	1931.
	Rs.	Rs.	Rs.
I. Raw materials—			
(a) Sand	16,400	16,400	13,900
(b) Soda ash	77,000	75,800	63,400
(c) Lime	6,100	6,100	5,000
(d) Crucibles * x		(Crucibles are not used.)	
(e) Refractory materials	7,700	6,775	3,975
II. Works labour	41,793	38,728	31,000
III. Power and fuel	1,26,259	1,05,000	75,000
IV. Supervision and office establishment	15,500	14,500	9,400
V. Current repairs and maintenance		(Accounted in refractories.)	
VI. Packing	41,000	39,000	26,800
VII. Selling expenses	8,100	10,900	9,100
VIII. Miscellaneous, stationery, rent, taxes and other general charges	30,800	27,100	16,000
Total	3,70,652	3,40,303	2,53,575
Total production is cases of glass for the year—(a) melted, (b) finished	34,980	35,200	29,830

FORM II.—Statement showing the works expenditure per 100 cases of window panes during the past three years.

	1929.	1930.	1931.
	Rs.	Rs.	Rs.
I. Raw materials—			
(a) Sand	46·9	46·6	46·6
(b) Soda ash	220·1	215·3	212·7
(c) Lime	17·4	17·3	16·7
(d) Crucibles	(Crucibles are not used.)		
(e) Refractory materials for furnace	22·0	18·9	13·3
(f) Other materials . . . . .	...	...	...
II. Works labour	119·4	110·0	104·0
III. Power and fuel	360·9	298·3	251·4
IV. Supervision and office estab- lishment	44·2	41·1	31·5
V. Current repairs and main- tenance	(Accounted in refractories.)		
VI. Packing	117·2	110·7	90·0
VII. Selling expenses	23·2	30·9	30·5
VIII. Miscellaneous, e.g., stationery, rent, taxes and other general charges (Depreciation)	88·0	77·0	54·0
Total	1,059·3	966·1	850·7

Less credit for materials recovered—Nil.

(4) Letter dated the 28th January, 1932, from the United Provinces Glass Works, Ltd.

I have gone through the evidence and I have verified all the figures including those of Belgian cost. There are some inconsistencies at several places. I have corrected them as far as I could remember. On page 62 I was asked to send a note showing the quantities in the proportion used by Belgians, which is given below:—

Sand	1,000
Soda	320
Lime	280
Saltcake	110

On page 65 I undertook to inform the selling expenses of Belgium factories, which I have not been able to find out. I have also ascertained and found that the cost of production as given on page 64 is a cost of production of work.

There seems to be some confusion about economical and uneconomical prices on pages 79-80. What I meant is expressed again as below:—

The Belgian manufacturers export 4th quality to India at a price equal to their cost of raw material, packing, labour and transport charges without charging for supervision and depreciation, etc., which they recover from the sale of better qualities in their own country. This is not a loss to them, because they get the price of raw material, packing, labour and transport of the quality which they would have thrown as rejected. But surely this is an uneconomical price from the manufacturers' point of view as it does not cover the whole cost of production and surely it is disadvantageous price for us to compete with.

Your telegram of the 23rd instant. The amount of depreciation included under miscellaneous expenses for 1931 is Rs. 15,900. In fact we count Rs. 167-4 per day as depreciation on window glass plant. Out of this we charge Rs. 100 per day on sheet glass manufacture and we charge Rs. 67-4 on the blown ware which we take out from tank. Therefore the depreciation put in the account of window glass manufacture during 1931 has been Rs. 15,900.

UNITED PROVINCES GLASS WORKS, LTD.

B.—ORAL.

**Evidence of Mr. J. D. VARSHNEI, recorded at Bombay, on Monday,
the 11th January, 1932.**

President.—Mr. Varshnei, you represent the United Provinces Glass Works, Limited?

Mr. Varshnei.—Yes.

President.—You are the Managing Director?

Mr. Varshnei.—I am called the Managing Agent.

President.—What I propose to do this morning is to draw your attention to three or four points which are important in connection with your case and then try to elicit a little more information than is contained in your replies to the questionnaire, so that the Board may be in a position to make up its mind on these points. Now, the first question that arises in connection with your case is this. At present your works happens to be the only sheet glass works in the country and if we are going, as the result of this enquiry, to grant protection for sheet glass, the question will arise whether, in basing our proposals on your costs, we may not be basing them on the costs of a factory which perhaps may be uneconomically located. Now the way in which I propose to consider that question is this. I propose to take Bahjoi as a typical upcountry centre. Having examined the costs that we have had from other upcountry centres I personally do not see any reason why other upcountry centres should be preferred to Bahjoi.

Mr. Varshnei.—I am glad to hear of that.

President.—But the real question is whether it would probably be more profitable or economical for a factory if it were located in a big port market like Calcutta than at Bahjoi. Therefore the problem reduces itself to this. Supposing your sheet glass works were located in Calcutta or a suburb of Calcutta instead of at Bahjoi, would the position of your factory be distinctly better? That is the question that I am going to consider. I will tell you precisely how I am going to do it. I am taking the more important items in the cost statement and we shall see what the position would be, taking the rates which you actually adopt at Bahjoi and the rates which might be adopted in Calcutta on such information as we have from Calcutta glass factories.

Mr. Varshnei.—Yes.

President.—If you look at your cost statement, the first item is sand. The quantity of sand that you use per ton of glass you give as 1,623 lbs. From the figures that we have of representative Calcutta factories I propose to take the cost of sand at Calcutta as 10 annas 6 pies per maund which gives us for 1,623 lbs. approximately Rs. 13.

Mr. Varshnei.—Yes.

President.—You give three or four figures for sand. I take in your case 7 annas 3 pies as the typical price for sand. That gives us Rs. 9 approximately?

Mr. Varshnei.—The Calcutta figure is Rs. 13 and mine Rs 9.

President.—That gives you an advantage of Rs. 4 on sand?

Mr. Varshnei.—Yes, which I would call as *plus* price.

President.—The next item is soda. There I don't propose to go into the question of price because your disadvantage is freight from Howrah to Bahjoi. I think in one of your replies you give the freight on soda as 14 annas per cwt.?

Mr. Varshnei.—That is right.

President.—Fourteen annas per cwt. on 519 lbs. which is the quantity that you use is the disadvantage against you. That comes to Rs. 4 per ton of glass?

Mr. Varshnei.—Just a little less.

President.—Let us take it as Rs. 4. That is a *minus* figure?

Mr. Varshnei.—Yes.

President.—With regard to lime what you do is you take 471 lbs. of limestone?

Mr. Varshnei.—Yes.

President.—You get it on an average at 9 annas 6 pies per maund?

Mr. Varshnei.—Yes.

President.—That gives your cost roughly as Rs. 3½ per ton of glass.

Mr. Varshnei.—Yes.

President.—Now the difficulty with regard to Calcutta in the case of one or two factories that I am thinking of is they use burnt lime.

Mr. Varshnei.—Yes.

President.—Therefore they are able to use a smaller quantity?

Mr. Varshnei.—Yes.

President.—May I take it as 250 lbs. approximately?

Mr. Varshnei.—It will be a little more. It will be about 300 lbs.

President.—These people say that they receive it in the form of burnt lime?

Mr. Varshnei.—If you analyse it, it will not come to CaO. There will be a little CaCO₃ and many other things. If I am not much mistaken, you will find on calculation that the figure will be at least 280 lbs. if not 300 lbs.

President.—Subject to further consideration, shall we take it as 280 lbs.?

Mr. Hodkin.—The majority of the limes obtained by the Indian glass works are a mixture of burnt lime and slaked lime?

Mr. Varshnei.—You are perfectly right.

Mr. Hodkin.—In proportions which none of them determine?

Mr. Varshnei.—Quite.

President.—Therefore would it be much safer to take it at 300 lbs.?

Mr. Hodkin.—Yes.

President.—Let us proceed on the basis of 300 lbs.

Mr. Boag.—There is one point which I want to clear up before we proceed further. In one place, you give the cost of lime as 9 annas a maund and in the other case as 9 annas 6 pies per cwt.?

Mr. Varshnei.—There are two or three kinds of lime which we are using.

Mr. Boag.—In both cases it is per maund, is it not?

Mr. Varshnei.—Yes. If in one place it is given as so much per cwt., then it is wrong. Both the figures are per maund.

President.—Let us take it at 9 annas 6 pies per maund?

Mr. Varshnei.—Yes.

President.—For 300 lbs. they pay Rs. 2.

Mr. Varshnei.—Yes.

President.—The cost of 300 lbs. of burnt lime at Rs. 2 per maund would be approximately Rs. 7-8-0; you pay Rs. 3-8-0 and therefore your advantage there is Rs. 4. Let us take it as *plus* 4.

Mr. Varshnei.—Yes.

President.—Now we come to the really important item which is coal. You say the cost of coal delivered at the works is generally Rs. 15 a ton.

Mr. Varshnei.—I may explain that I generally take my coal as 25 maunds or even less than 25 maunds to a ton because there is a lot of

wastage and some coal is pilfered. In fact it is Rs. 13 but I have always calculated it at Rs. 15 a ton.

President.—That is to say, taking the cost of coal actually delivered at the works your cost would be less than Rs. 15 a ton?

Mr. Varshnei.—Yes. It is actually Rs. 13.

President.—But the effective cost comes to Rs. 15 a ton?

Mr. Varshnei.—That is so.

President.—I think in that case we had better take Rs. 13. There is another thing. This figure of 3 tons of coal per ton of glass that you give, is that based on coal as it is landed at the works?

Mr. Varshnei.—No. It is the effective cost.

President.—Then I propose to take Rs. 15 for the time being as the cost of coal per ton. Taking three tons it comes to Rs. 45.

Mr. Varshnei.—Yes.

President.—In Calcutta it is Rs. 8 per ton without making allowance for this particular factor.

Mr. Varshnei.—Probably in Calcutta the reduction will not be so heavy as it is with us.

President.—From their evidence it would look as if their difficulty was equally great if not greater! I propose to take the Calcutta cost as Rs. 9-4-0; that on 3 tons is Rs. 27-12-0.

Mr. Varshnei.—Yes.

President.—And your cost is Rs. 45.

Mr. Varshnei.—Yes. That is *minus* 17-4-0.

President.—With regard to other materials—I mean materials other than sand, soda, lime and coal—are there any imported materials which you use on which the freight from port to works would be a disadvantage to you?

Mr. Varshnei.—There are no other imported raw materials that we are using.

President.—What about your refractory materials?

Mr. Varshnei.—The price is nearly the same because the railway freight from Kumardhubi or Jubbulpore is the same for both places; probably the Jubbulpore stuff will cost them more than it would cost us while Kumardhubi will be much the same.

President.—Where you make blocks or silica bricks from Indian clay, Calcutta has no advantage over you?

Mr. Varshnei.—I should think so.

President.—But taking bricks that you make out of imported clay you would have to bear a certain disadvantage?

Mr. Varshnei.—That is correct, but I should think that our consumption of imported fireclay—I have not calculated it accurately—will not be more than a fifth or sixth of four total consumption of fireclay material.

President.—So that we can dismiss that as a negligible factor; it may be a difference of a few annas?

Mr. Varshnei.—Yes.

President.—The next item is works labour. That is rather a difficult point on which to arrive at a definite conclusion.

Mr. Varshnei.—Probably you might have noticed that ordinary labour over at Calcutta is about 10 annas per head whereas at Bahjoi it is 4 annas, so it is nearly 2½ times greater over there.

President.—If you look at your reply to question 30, all these men that you mention there are skilled men, aren't they?

Mr. Varshnei.—Yes, after some training.

President.—The average rate for unskilled labour at Bahjoi is 5 annas a day?

Mr. Varshnei.—No. 4½ annas at the most.

President.—In that case it would be at least half the Calcutta rate?

Mr. Varshnei.—You cannot get labour at Calcutta for 9 annas.

President.—I don't know if labour at 9 to 10 annas a day would not be possible to get in some of the suburbs; for example take a factory at Dum Dum.

Mr. Varshnei.—It is not far off from Calcutta; it is about 15 miles from Calcutta.

President.—I think for the purpose of this calculation a safe ratio to take is that Calcutta unskilled wages are about double.

Mr. Varshnei.—Let us take that, but probably it will be a little more than that.

President.—For the present I think a ratio of 2 : 1 would be a safe ratio. We can consider the point later and make adjustments.

Mr. Varshnei.—Yes.

President.—If you look at your cost statement, your works labour per 100 cases amount to Rs. 104. I take it from the figures that you have given here that approximately 18 cases go to a ton of glass—it is of course a very general kind of average.

Mr. Varshnei.—At present it is 18 cases but later on I think it would be 19.

President.—I will take your wage per ton of glass as about Rs. 18 and take Rs. 36 for Calcutta on the proportion that we have taken. That gives you an advantage of Rs. 18, in other words your disadvantage on coal is exactly counterbalanced by your advantage on labour.

Mr. Varshnei.—Probably a little more.

President.—What about packing? Your packing is all done with materials obtained locally, is it not?

Mr. Varshnei.—Yes.

President.—What about your boxes?

Mr. Varshnei.—The boxes are available within 105 miles of the factory; in fact the majority of them are obtained from within four or five miles but those which we cannot get locally are obtained from Lalkua which is about 105 miles from our factory.

President.—There I suppose you would have considerable advantage?

Mr. Varshnei.—Not very much. Probably in Bombay or Calcutta you can get planks at the rate of Rs. 8 and ours is Rs. 5 per 100 sq. ft. It may be a bit more or a bit less.

President.—You have more or less accurate information about these rates in Calcutta and Bombay, have you?

Mr. Varshnei.—Yes, but you are probably having the very latest information.

President.—If you take it on the basis of 5 : 8, then taking a case at what would you estimate the advantage?

Mr. Varshnei.—Our price per case is 12 annas and probably in Bombay it would come to something like Rs. 1-3-0 or a little above that.

President.—That is a difference of 7 annas a case?

Mr. Varshnei.—That means that on 18 cases the difference will be Rs. 7-14.

President.—Let us take it for the time being as Rs. 7-14. That is an advantage for you?

Mr. Varshnei.—Yes.

President.—There is another point on which it is rather difficult to arrive at a correct conclusion and that is the freight advantage that you have on finished glassware. The only way in which I can make any attempt in calculating, that is, to make first an assumption with regard to the general distribution of your sales between port markets and upcountry markets and then having done that, take some particular upcountry centre as typical of the whole upcountry markets and base the calculation on that. You give us a list of upcountry markets where your goods are sent. I was inclined to suggest, looking at these figures and also looking at the mileage distance, that Allahabad is probably typical of your upcountry markets?

Mr. Varshnei.—I think it may come up to that almost.

President.—The distance from Bahjoi to Howrah is somewhere about 800 miles and this is about 350 so that for practical purposes Allahabad may be taken as typical.

Mr. Varshnei.—The further we go on from Allahabad westwards the advantage will increase till we reach Bahjoi. The moment we go from Bahjoi westwards the advantage will remain constant. Similarly from Bombay when we go up to Bahjoi the advantage goes on increasing and after my goods go beyond Bahjoi to the north then the advantage remains just the same as at Bahjoi.

President.—The way I look at it is this: if you go 300 to 400 miles east of Bahjoi towards the south then your advantage against Calcutta ceases: on the other hand, if you go to the west, say about 300 to 400 miles, as compared with Bombay your advantage ceases and to the north your advantage as compared with Karachi, but you will have increasing competition beyond 300-mile limit.

Mr. Varshnei.—The moment we go up to Amritsar or Lahore the advantage is the maximum and then beyond that it is just the same. For practical purposes if you take Allahabad you will not be far out.

President.—There will be some difficulty in calculating the advantage on freight. The freight that you give here from Calcutta is Rs. 1-11-1 while the freight from Bahjoi is As. 10-9 per maund. What we want to get at is the freight in each case on a maund of glass duly packed. Therefore, in trying to get the freight on one maund of glass you have got to make an addition to the freight corresponding to the packing material. The figure you give of the ratio of net weight to gross weight is approximately 7 : 6. Therefore Rs. 1-11-1 has got to be increased by $\frac{1}{6}$. That comes to Rs. 3-2-0.

Mr. Varshnei.—No, 6 is the weight of glass. See 45 (b)—the ratio of gross weight to net weight is 7·2 : 6.

Mr. Boag.—7·2 is the gross weight: 6 is glass and 1·2 is packing?

Mr. Varshnei.—Exactly.

Mr. Boag.—Then Rs. 1-11-1 $\times \frac{7}{6}$ gives you the gross freight; the weight of the packing material is then $\frac{1}{6}$ th of the gross weight?

Mr. Varshnei.—Yes.

President.—You are able to do with so little packing material?

Mr. Varshnei.—Yes.

President.—Let us take it at Rs. 1-15-0. That will be the freight on a maund of glass packed from Howrah to Allahabad?

Mr. Varshnei.—Yes.

President.—Making the corresponding calculation for Bahjoi, it comes to about As. 12-3.

Mr. Varshnei.—Yes.

President.—You have an advantage of Rs. 1-3-0?

Mr. Varshnei.—Yes on every maund of glass.

President.—From Bahjoi to Howrah would it be right to assume that half your sales are in the port markets and about half your sales in the upcountry.

Mr. Varshnei.—That would be right provided I get protection.

President.—Provided you are able to find sufficient outlet for your products. The special rate that you get from Bahjoi to Howrah is As. 12. Actually you are paying Rs. 1-6-6.

Mr. Varshnei.—Yes per case.

President.—The total freight which you would have to pay from Bahjoi to Howrah on a maund of glass packed will come to As. 14.

Mr. Varshnei.—Yes.

President.—Therefore your advantage in upcountry is Rs. 1-3 and your disadvantage at port is As. 14?

Mr. Varshnei.—Yes provided all our goods are consumed in Allahabad.

President.—For the moment we have got to assume Allahabad as a typical market.

Mr. Varshnei.—Yes.

President.—Rs. 1-3-0 is the advantage that you get on half your output. Supposing that advantage was distributed over the whole output, your advantage per unit of the whole output would be half of Rs. 1-3-0.

Mr. Varshnei.—Yes.

President.—That would be As. 9-6?

Mr. Varshnei.—Yes.

President.—Your disadvantage in the port market would be As. 14 per maund?

Mr. Varshnei.—Yes.

President.—Supposing your sales represent half your output, As. 14 represents your disadvantage on half your output?

Mr. Varshnei.—Yes.

President.—Supposing that disadvantage is distributed over the whole of your output, your disadvantage is As. 7 per unit. If you deduct As. 7 from As. 9-6, you get a net advantage of As. 2-6 per maund on your whole output.

Mr. Varshnei.—Quite right.

President.—That comes to Rs. 4-3-0 per ton of glass?

Mr. Varshnei.—Yes.

President.—That of course includes a lot of hypothetical things.

Mr. Varshnei.—You are far from facts. You assume that half of our goods will be consumed in importing centres and another half will be consumed in Allahabad or somewhere, where I will have only that advantage.

President.—In fact you are questioning the assumption that Allahabad is the typical centre of your market.

Mr. Varshnei.—Allahabad is in between.

President.—When you go beyond Allahabad, your advantage is less.

Mr. Varshnei.—Certainly.

President.—When you go towards Bahjoi, your advantage is greater. You would lose on the one side and gain on the other. Therefore your position at Allahabad is typical.

Mr. Varshnei.—Supposing a factory is started at Karachi, the advantage will be reduced, but as soon as it comes to Lahore, I am at an advantage. On all the goods which come from Allahabad to Bahjoi or from Karachi to Peshawar, the advantage is much more than what I get between Allahabad and Bahjoi.

President.—As far as the Karachi port market is concerned, Lahore is apparently the dividing line.

Mr. Varshnei.—Multan is the dividing line just as we have Allahabad.

President.—As far as Bombay is concerned, which is the dividing line?

Mr. Varshnei.—Ajmere.

President.—As far as Calcutta is concerned?

Mr. Varshnei.—Allahabad.

President.—Assuming for the time being we consider Calcutta as your typical port market, then Allahabad becomes your typical upcountry centre.

Mr. Varshnei.—I further want to draw your attention to this fact. This peculiar position is created on account of the geographical position. If it was only Karachi, Multan, Lahore, the assumption that you have made would be quite all right. I have got another special advantage from Lahore to Peshawar. For our present purposes we might ignore that, though decidedly I have another advantage there.

President.—Supposing the assumption that I have made is qualified by the considerations that you have stated, would your freight advantage as against the port markets be greater or less than these calculations show?

Mr. Varshnei.—It would be a little greater. It would be somewhere about 7 to 8 per cent.

President.—If we take a figure of Rs. 4, it would be a very conservative estimate of the freight advantage.

Mr. Varshnei.—I should think so.

President.—Let us take it on that basis.

Mr. Varshnei.—Yes.

President.—That practically completes the items on which there is likely to be differences as between Bahjoi and Calcutta. If you add up the *plus* factors, it comes to Rs. 18.

Mr. Varshnei.—Yes.

President.—Rs. 18 is the total advantage that you have as compared with Calcutta?

Mr. Varshnei.—Yes.

President.—Now the position is the whole thing seems to me to hang on coal. What I mean is if your coal consumption goes up, your disadvantage straightway increases. If your coal consumption is reduced, then your advantage becomes considerably greater.

Mr. Varshnei.—Surely.

President.—As far as you are concerned it looks to me therefore coal represents the key position.

Mr. Varshnei.—Yes, it does. I will tell you later on that there are prospects of decreasing the coal consumption.

President.—I will come to that later. Here one thing can be stated safely. That is as things stand at present the location of a glass factory at an upcountry centre in the United Provinces like Bahjoi is not at any rate unfavourable.

Mr. Varshnei.—You can say that positively.

President.—That I think would be a safe deduction to draw.

Mr. Varshnei.—Quite safe.

President.—The next point that I want to raise is this: you have made the suggestion in one of your replies that the sheet glass exported by Belgium is sold at dumping prices.

Mr. Varshnei.—It is.

President.—The suggestion that you make definitely is that that price probably represents only the costs of materials, labour and other direct charges. That is to say the costs which if a manufacturer were not able to meet out of his realisations, he would be definitely out of pocket, but anything in the nature of overheads he can afford at any rate to put off.

Mr. Varshnei.—Quite true.

President.—That statement from the point of view of an enquiry of this kind is an important statement and I should like a little more evidence than you have given in your replies to the questionnaire on that point. Meantime I want to say this that I have had access to certain figures of costs in Belgian sheet glass factories working with fourcault machine and those costs which relate to the year 1926, I may say, straightway seem to bear out the conclusions that you have suggested in your replies. If there has been a substantial reduction in the costs since 1926, the position necessarily will be altered. What I want to ask you is can you give us any information with regard to recent costs?

Mr. Varshnei.—I can get you the price that was ruling a month ago.

President.—As recent as that?

Mr. Varshnei.—Yes.

President.—You have got a detailed statement of costs?

Mr. Varshnei.—Yes in the form in which you have asked us to submit.

President.—Is it a Belgian factory?

Mr. Varshnei.—Yes. There are 7 glass factories working under one head. All the others have been closed down. These prices are for that group. These people are our direct competitors. I may say that 80 per cent. of our competition comes from these people and the other 20 per cent. from others.

President.—In what form have you got these figures?

Mr. Varshnei.—If you want figures for raw materials, I have brought them.

President.—Have you worked it out in rupee currency?

Mr. Varshnei.—Yes.

President.—At what rate of exchange?

Mr. Varshnei.—13 francs to the rupee. At present of course it is higher. As I am not sure of the present rate of exchange, I have calculated it at 13 francs to the rupee.

President.—What is the figure that you have for sand?

Mr. Varshnei.—For sand I haven't got separate figures. I have got figures for sand, soda and lime. Need I give you figures about quantities?

President.—What is the total figure?

Mr. Varshnei.—Rs. 100 per 100 cases. The reason for that I shall explain presently. In my case it will be Rs. 276.

President.—Have you got the rates?

Mr. Varshnei.—Soda ash they pay Rs. 53-7-6 per ton.

President.—Is that metric ton or long ton?

Mr. Varshnei.—Just the sort of ton that we are taking. One hundred kilo. means approximately 220½ lbs.

President.—When you work it out to a ton basis, I assume that you are taking the ton as equal to 2,240 lbs.

Mr. Varshnei.—Yes, and the calculation which I gave you was on 100 cases.

President.—When you say Rs. 53-7-6 per ton, I take it that the kilo. figures have been converted into ton figures.

Mr. Varshnei.—Yes, the price of our supply of soda ash has gone up now. It is Rs. 160 per ton just now.

President.—What about sand? Have you got figures for sand?

Mr. Varshnei.—It is Rs. 2 per ton at Belgium.

President.—What about lime?

Mr. Varshnei.—Rs. 3-8-0 a ton.

President.—What sort of lime?

Mr. Varshnei.—It is unburnt lime—just the kind that we are using.

President.—Is it limestone?

Mr. Varshnei.—Yes. Then there are cullets which are a very important item. They are using them at Rs. 19 per ton.

Mr. Hodkin.—Do they purchase cullet?

Mr. Varshnei.—Yes. Then there is paper which is another important point.

President.—You mean for packing?

Mr. Varshnei.—Yes. It is one anna a lb.

President.—I had better take down the proportions of these materials if you have them. Do you know what quantities they use per 100 cases?

Mr. Varshnei.—I have that information. Unfortunately I have not got it here. But I have a figure of 1,616 tons for all the raw materials together.

President.—You could send us a note later on showing the quantities in the proportion used per 100 cases or whatever the unit is.

Mr. Varshnei.—If you want, I can give you the information per 100 cases.

President.—In what form have you got it?

Mr. Varshnei.—They only say that if they use 1,000 kilos of sand, they will use so much of soda, so much of lime and so on.

President.—Give it then in that form. There is no information, is there, of the quantity of glass turned out in relation to the quantity of sand used?

Mr. Varshnei.—I have not got that, but I think that Mr. Hodkin will be able to help you.

President.—I can get expert figures from Mr. Hodkin, but I want to know whether there are any actual figures?

Mr. Varshnei.—I shall try and find out. But I have one figure here showing that out of so much raw materials, so much glass is made.

President.—That is the information I want.

Mr. Varshnei.—I have it here.

President.—What is that?

Mr. Varshnei.—In the month of November they used 1,616 tons of raw materials and they produced 23,716 boxes. To tell you frankly, this is not a very accurate information. The quantity of raw materials represents the quantity purchased and bills outstanding. Both those things have been taken into account, but there is always some balance left.

President.—Coal may be included in that and then that will be another disturbing factor?

Mr. Varshnei.—Yes.

President.—I don't think that would help us.

Mr. Varshnei.—No.

President.—So, you give us simply the proportions.

Mr. Varshnei.—Yes.

President.—Have you got figures for other items?

Mr. Varshnei.—Yes.

President.—Have you any figure for labour?

Mr. Varshnei.—They have given it under various heads. I have totalled that all and I find that it comes to Rs. 127·2 per 100 cases of glass.

President.—What about fuel?

Mr. Varshnei.—Their fuel is given in a very different way. They use a certain quantity of coal. They use electric power which they purchase and they also use town gas. I have added all that up, and the cost per 100 cases comes to Rs. 93.

President.—That is to say they use their fuel partly in the form of coal, partly in the form of gas and partly in the form of electricity?

Mr. Varshnei.—Yes.

President.—Supposing we took this Rs. 93 and divided it by the price of coal per ton, we would get the coal equivalent of all the kinds of power that they had used?

Mr. Varshnei.—Yes. But one thing is certain. The Town gas or the electric power which they purchase is certainly cheaper than what we can produce on a small scale.

President.—Here?

Mr. Varshnei.—Here or anywhere in the world, we cannot produce power at that price on a small scale.

President.—I quite realise that. Have you got their price of coal?

Mr. Varshnei.—They are using three kinds of coal. The English coal is Rs. 11-2-6 per ton delivered at their works, Belgian coal Rs. 13-13-0 and German coal Rs. 14 per ton.

President.—And all I suppose really represent different calorific values?

Mr. Varshnei.—Yes.

President.—Actually do you know what kind of coal they use?

Mr. Varshnei.—They mix all the three and use.

President.—That of course is a very low consumption?

Mr. Varshnei.—Yes. If you take the average value of coal at Rs. 13, it will come to 7 tons per 100 cases.

President.—Taking 18 cases to a ton, it will be a little more than a ton of coal to a ton of glass?

Mr. Varshnei.—In their case, it will be 20 cases per ton. Their glass is lighter than ours. That means for 5 tons of glass they use 7 tons of coal on this calculation.

President.—What are the other items you have?

Mr. Varshnei.—I have their overhead charges.

President.—What do you call overhead?

Mr. Varshnei.—Management and direction. I don't know what they mean by direction. Perhaps Mr. Hodkin will be able to enlighten us on that point.

Mr. Hodkin.—Direction usually includes technical workers on the plant and engineers.

Mr. Varshnei.—Everything taken together under that item comes to Rs. 10'8.

President.—That is what we call supervision and establishment.

Mr. Varshnei.—Yes. Then, we come to packing which is Rs. 102 per 100 cases. Then we come to miscellaneous.

President.—Do they show their repairs and maintenance?

Mr. Varshnei.—Yes. They have two accounts of repairs. One is heavy repair and another ordinary repair.

President.—What is ordinary repair?

Mr. Varshnei.—I have not calculated it in rupees. I have it here in francs. Ordinary repair is 5,240 fr. and heavy repair 70,874 fr.

President.—What they call heavy repair is depreciation, is it not?

Mr. Varshnei.—When a tank is repaired, perhaps they call it heavy repair.

Mr. Hodkin.—Heavy repair means furnace replacement and complete overhauling of machinery. Ordinary repair will be patching of tanks and replacements of bolts and nuts on a machine, etc.

Mr. Varshnei.—I should think so.

President.—Heavy repairs seem to correspond to depreciation.

Mr. Hodkin.—Yes.

Mr. Varshnei.—They have not got that system probably.

President.—Anyway you have given us 5,240 fr. as ordinary repairs.

Mr. Varshnei.—Yes. That is the total for one month.

President.—Can you work it out per 100 cases?

Mr. Varshnei.—It will be 22 fr. per case.

President.—That will be Rs. 1·7

Mr. Varshnei.—Yes.

President.—What do heavy repairs come to?

Mr. Varshnei.—70,874 francs. This is only for tanks. There are other items also such as heavy repairs on other things. The total of all these expenses is Rs. 78.

President.—You mean all the heavy repairs?

Mr. Varshnei.—Including everything that I have taken under miscellaneous expenses and so on (Item No. 8).

President.—I want to know precisely what it includes?

Mr. Varshnei.—Depreciation, taxes and all miscellaneous expenses.

President.—It includes repairs, depreciation.

Mr. Varshnei.—Some repairs of ours go into that, and some into refractories.

President.—What I want to be clear about is this. Did you arrive at that Rs. 78 by including ordinary repairs, heavy repairs, taxes and all kinds of miscellaneous expenses?

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—Do I understand that this Rs. 78 compares with your Rs. 54?

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—You have said just now something about refractory materials?

Mr. Varshnei.—Against our Rs. 13, they have put down Rs. 4.

President.—What is the total?

Mr. Varshnei.—

	Rs.
Raw materials	100
Refractories	4
Labour	127·2*
Fuel	93
Overhead charges	10·8
Packing	102
Miscellaneous	78
Total	515*

President.—That comes to Rs. 5 per 100 sq. ft. and Rs. 500 per 100 cases. Suppose we take their labour and materials and coal and leave out the heads miscellaneous charges and overhead charges?

Mr. Varshnei.—That will give you Rs. 4·4·0 as the cost of production.

President.—Rs. 3·76 is the total of their direct charges; that works out to 5s. 8d.

Mr. Varshnei.—Yes, and you have to add on that steamer charges.

President.—I am thinking of the f.o.b. price at Antwerp.

* Since corrected.

Mr. Varshnei.—We don't know what their railway freight is.
President.—The c.i.f. price of Belgian sheet glass, are they calculated in sterling currency?

Mr. Varshnei.—No. In American dollar.

President.—Have you got any quotations?

Mr. Varshnei.—I have got the market rate but I have not got any c.i.f. quotation.

Mr. Boag.—One thing I should like to be cleared up. The total of the figures seem to me to come to 465 and not 504.

They are as follows:—

Raw material	100
Refractories	4
Labour	77.2
Fuel	93
Direction, etc.	10.8
Packing	102
Miscellaneous	78
TOTAL	465

Mr. Varshnei.—You are right; I was mistaken.

President.—That is how you got your Rs. 4-13-0?

Mr. Varshnei.—Yes. I thought there must be some mistake somewhere.

Mr. Rahimtoola.—In your statement you have said that there is an item called selling expenses. Where is that included in this new statement for Belgium?

Mr. Varshnei.—I think the system there is that they always make goods to exporters order, and they simply give the articles to the exporter.

Mr. Rahimtoola.—Probably, to my mind, that is included in their miscellaneous cost. That means 84 against 77. That would be more correct; yours is 30 and 54 as against 77. Probably there is no corresponding item.

Mr. Varshnei.—Probably not. I will make a note and find that out.

President.—The other question I want to raise is this. Look at Forms I and II that you have sent in to us: take Form II. Suppose we decide to grant protection for the sheet glass industry and you are able to find a better outlet for your production, to what extent would you be able to reduce costs and under what heads would you be able to do it? The way I look at it is this: I think in 1931 your total output during the year was only 30,000 cases because you worked only for five months and a few days.

Mr. Varshnei.—Yes.

President.—Actually you attained a daily output of over 200 cases.

Mr. Varshnei.—It is 187.6.

President.—Against your daily total capacity of 330?

Mr. Varshnei.—That total capacity will not be achieved immediately. Even if I had a chance to work continuously my average outturn will not come to 300 cases per day yet.

President.—Suppose adequate protection were granted to the Glass industry, do you think you would be able to work up to 250 cases a day?

Mr. Varshnei.—Certainly. I think I will be able to come up to 300 cases within a sufficient period.

Mr. Boag.—What do you think will be a sufficient period? How soon do you think you can achieve 300 cases?

Mr. Varshnei.—I should put it down at 10 years.

President.—It depends on the degree of protection afforded?

Mr. Varshnei.—Exactly.

President.—Suppose you were able to work up to 300 cases a day. What do you think is likely to be the cost of production?

Mr. Varshnei.—It is a somewhat hypothetical question. I can only say that according to the present circumstances I can do so.

President.—Let us take this statement. I don't expect you would be able to reduce your cost of soda, sand and so on unless the price of these materials come down.

Mr. Varshnei.—That is so.

President.—As far as packing is concerned I don't think you can reduce your cost?

Mr. Varshnei.—Not very materially.

President.—What about works labour?

Mr. Varshnei.—That will be reduced by about 5 per cent.

President.—That is to say it will be less than Rs. 100 on 100 cases?

Mr. Varshnei.—Yes.

President.—Is that all the reduction you could achieve?

Mr. Varshnei.—This is the utmost reduction which I hope to effect in this respect.

Mr. Hodkin.—I don't think you can reduce by more than 5 per cent.

President.—Now let us get to the question of fuel. At present your consumption of fuel is 3 tons of coal per 100 cases?

Mr. Varshnei.—It is Rs. 251 at present.

President.—Which is about 17 tons. There must be considerable room for reduction there?

Mr. Varshnei.—I think so. Except for burning our debitois and a little more expense on the drawing tank, the coal will remain almost the same. say presently our daily expense of coal is Rs. 475. when we make 300 cases a day, it will come to somewhere about Rs. 520. That means that one third of that will come to Rs. 173 or Rs. 180 at the most, so out of Rs. 250 we will be able to save about Rs. 80 per 100 cases.

President.—You are anticipating a reduction from 17 tons to 12 tons per 100 cases. Even that of course is considerably above the Belgian standard.

Mr. Varshnei.—But then you have got to remember that the calorific value of Belgian coal is much higher than ours: in the proportion of 7:10 so that the consumption of coal will be much higher in our case.

President.—But against their one ton I suggest 1½ ton for you to make allowance for the calorific value.

Mr. Hodkin.—F gives figures for Belgian manufacturers as 7 tons of coal for 5 tons of glass. I think 2 tons will be a fair figure to take.

Mr. Varshnei.—Yes; it may be a little more than that.

President.—Supposing we accepted the figure of 2 tons as your best attainable figure, that would not be far out?

Mr. Varshnei.—I can only guess like that; it will be hard to attain any higher figure than that.

President.—Coming to supervision and Office Establishment, I notice you have reduced your supervision figures in 1931.

Mr. Varshnei.—Yes.

President.—Is that the result of retrenchment?

Mr. Varshnei.—I have made retrenchment by 50 per cent. in the higher grade—from 100 to 250 it is 20 per cent., 250 to 500 30 per cent. and above 500 it is 50 per cent. But there is an express condition that as soon as the company is able to make any profit, half of it will be given back to them immediately and as soon as we make 6 per cent. profit there will be no more retrenchment.

President.—There is bound to be reduction in current repairs and maintenance if the output increases?

Mr. Varshnei.—We have not given any figure for that.

President.—You have included that under No. 8?

Mr. Varshnei.—Yes.

President.—How exactly do you bring about this reduction in packing?

Mr. Varshnei.—At that time we were not so very particular as to the materials we were consuming but now we don't allow any loss whatsoever.

President.—It is really economy in materials?

Mr. Varshnei.—Yes. Our planks in the beginning cost us Rs. 5-4-0 and we are now trying to reduce it to Rs. 5-0-0. This is almost as economical as we might expect unless we get the planks cheaper.

President.—Does your item No. 8 include depreciation?

Mr. Varshnei.—Yes.

President.—The only substantial reduction is under coal, is it not?

Mr. Varshnei.—Yes.

President.—That is to the extent of about Rs. 70?

Mr. Varshnei.—Yes per 100 cases. There may be some more reductions here and there. Probably I may be able to go down from Rs. 850 to Rs. 750. We have only put that in judging from the present circumstances. That is the utmost that can be achieved.

President.—Even assuming that sufficient protection is granted and that protection is fully effective?

Mr. Varshnei.—Yes.

President.—The next point that I want to raise is in connection with market prices. If you look at page 14 of your replies in reply to question 49 you give for 1931 Rs. 6-4-0 as the price of imported sheet glass?

Mr. Varshnei.—Yes.

President.—And Rs. 7-9-0 as your realised price?

Mr. Varshnei.—Yes.

President.—Rs. 6-4-0 was the wholesale market price in Calcutta?

Mr. Varshnei.—Yes. I will tell you how I have been able to get Rs. 7-9-0. We do not send to Bombay and Calcutta.

President.—I quite understand that. You sold only in the areas in which you have freight advantage and restricted your output to the demand of that area?

Mr. Varshnei.—Yes.

President.—So that this big difference between Rs. 6-4-0 and Rs. 7-9-0 would disappear the moment you extended your output and your sales.

Mr. Varshnei.—Yes.

President.—How long ago was this price of Rs. 6-4-0 ruling in the Calcutta market?

Mr. Varshnei.—Up to last September.

President.—This is lower than the invoice prices that we have seen.

Mr. Varshnei.—I shall show you that.

President.—One of the lowest November prices I have seen in Calcutta is Rs. 6-4-0.

Mr. Varshnei.—So it is here.

President.—Rs. 6-4-0 c.i.f. To that you must add the duty.

Mr. Varshnei.—I am saying that up to September the price was Rs. 6-4-0.

President.—That was before the exchange fluctuations began.

Mr. Varshnei.—Yes and before the surcharge became operative.

President.—This is the price according to your information that ruled early in September?

Mr. Varshnei.—Yes up to the end of September.

President.—Have you got recent quotations?

Mr. Varshnei.—I am just going to show you. This is the Karachi price which is dated 7th August. He gives for half case Rs. 3-6-0.

President.—Have you got figures for 100 cases?

Mr. Varshnei.—They generally vary by 4 annas.

President.—These are Karachi figures?

Mr. Varshnei.—Yes, Mahomedali Abdulhusain is a big merchant.

President.—This is dated 7th August?

Mr. Varshnei.—Yes. I have got September price also.

President.—Have you got anything later than that?

Mr. Varshnei.—I have one for 1st October for Karachi market.

President.—What was the price on 1st October?

Mr. Varshnei.—Rs. 3-10-0 for half case.

President.—That is 50 sq. ft.?

Mr. Varshnei.—Yes and later on I have one dated 23rd November.

President.—What is that?

Mr. Varshnei.—Rs. 3-10-0 again. I have not got any figure later on.

President.—Have you got more recent quotations for Calcutta or Bombay?

Mr. Varshnei.—No, not for December.

President.—Have you got November quotations for Bombay and Calcutta?

Mr. Varshnei.—I am more in touch with Karachi figures, because the Punjab market is being supplied from Karachi. I think the present ruling price is something like Rs. 7-8-0 in Bombay and in Calcutta slightly above.

President.—Rs. 7-8-0 per case of 100 sq. ft.

Mr. Varshnei.—Yes.

President.—What was that early in September?

Mr. Varshnei.—Rs. 6-4-0 to Rs. 6-6-0.

President.—That finishes my questions as regards sheet glass, but there is just one point on which I should like to have your opinion. You have had experience of making other kinds of glassware besides sheet glass such as blown glass. Can you tell me what approximately is likely to be the difference in the cost of manufacturing globes and say phials or small bottles?

Mr. Varshnei.—You mean the white ones or the coloured ones?

President.—The white ones. The real point on which I want your suggestion is this: suppose it happens that you have a factory which is using, let us say, a tank furnace. It melts its glass in the tank furnace and then after it is melted the whole manipulation from blowing right to the end is done by hand—no machinery is employed—supposing on that method you make bottles of a kind which yield say about 35 gross per ton of glass; on the other hand supposing a works of that kind make lantern globes also 35 gross to a ton of glass, would there be any substantial difference in the cost of manufacture of these two classes of articles?

Mr. Varshnei.—The first important question is whether you are able to consume the glass which the tank has the capacity to melt. If you are consuming less glass than what the tank can melt, then the difference in the cost will be enormous. Supposing the tank can melt say some 10 tons of glass while you are consuming only half the quantity.

President.—Assume that you are working the tank furnace to full capacity.

Mr. Varshnei.—The more important consideration is the breakage, and the raw material and packing. In raw material we use a low percentage of alkali.

President.—A low percentage of alkali in bottles?

Mr. Varshnei.—Yes, bottles are made of harder glass and chimneys and globes are made of softer glass.

President.—Roughly what would be the proportion?

Mr. Varshnei.—It comes to something like 5 and 6 per cent.

President.—In the case of soda?

Mr. Varshnei.—Different manufacturers use different compositions, so it is very hard to say. It generally varies between 5 and 6 per cent.

President.—The cost of soda would be 5 to 6 per cent. higher.

Mr. Varshnei.—Yes. We generally use borax for bottles, but for chimneys we use nitre which we don't use for bottles. All these things taken together must mean somewhere about 5 to 6 per cent., but not more than 7 per cent. in any case.

President.—In the cost of the materials?

Mr. Varshnei.—Yes.

President.—What about breakages in the case of globes?

Mr. Varshnei.—We turn out glass and supposing you consume 5 tons of glass, in making chimneys you will not get more than 4 tons or 3½ tons in the form of chimneys, because you yourself saw in the factory from both the sides something has to be left out. In the case of bottles there is no wastage like that.

President.—Supposing for example I had one ton of glass which I gathered out of the melting pots, ordinarily if I allowed a breakage of about 20 per cent?

Mr. Varshnei.—There is no breakage. There is more wastage.

President.—What I mean by breakage is cracking off. Supposing I allowed 20 per cent. would that cover the wastage in the case of chimneys?

Mr. Varshnei.—In some cases, it might, but generally it doesn't.

President.—15 per cent. in the case of bottles and phials?

Mr. Varshnei.—There can't be so much wastage.

President.—Supposing there was, what would be corresponding increase?

Mr. Varshnei.—In bottles it is never more than 3 to 4 per cent.

President.—If it is 5 per cent?

Mr. Varshnei.—It would be 30 per cent. in the case of chimneys.

President.—You have such a big difference?

Mr. Varshnei.—Yes. When they blow, in some cases they don't strike that out. In other cases they do. In Germany they don't waste anything.

President.—On the other hand if you are making lantern globes by hand and use moulds which can make two or three at a time, then you save a certain amount on the blowing.

Mr. Varshnei.—But then the breakage will be a little more.

President.—Why should the breakage be more?

Mr. Varshnei.—There are two ends to be cut off in the case of chimneys, but everything depends entirely on the expertness of the workmen. There are workmen who are causing very little wastage. There are others whose blowing is bad. It depends entirely on the blowing and on the cutter.

President.—Under normal conditions in the Indian factories there is a fairly large increase of breakage in the case of chimneys as compared with bottles.

Mr. Varshnei.—Why, not only in India, but everywhere on earth that is the case.

President.—Wherever you use hand processes in manipulation, mouth blowing and so on?

Mr. Varshnei.—Quite.

President.—The extent to which that can be reduced really depends upon the degree of skill acquired by the workmen?

Mr. Varshnei.—Surely. It is a highly specialised branch of work. There are scientific apparatuses in the blowing of which a great deal of skill is required. Even these chimneys and globes are really a form of specialised articles.

President.—What about packing?

Mr. Varshnei.—Breakage in chimneys and globes at every stage is more than what it is in bottles. After the thing is made it has got to come to the grinding machine. There also breakage comes up. Then there is the sorting where breakage comes again. There is packing and there also breakage crops up.

President.—Taking your figure of about 5 per cent. as the wastage of glass after the melting stage in the case of phials and taking a corresponding figures say 25 to 30 per cent. in the case of chimneys or 20 per cent.?

Mr. Varshnei.—I would get 35 per cent. more. That means 40 per cent. If it is 5 per cent. in the case of bottles, it should be 40 per cent. in the case of chimneys.

President.—40 per cent. is rather high.

Mr. Varshnei.—If it is 5 per cent. for bottles, I should take 40 per cent. for the other. So far as breakage is concerned we generally count 20 per cent. from the time it is made till it is packed and sent out. What about the breakage in cracking off both ends? That has also got to be taken into consideration. 20 per cent. is quite all right if you take into consideration only the number of articles.

President.—For argument's sake let us take your figures 5 per cent. and 40 per cent. Do they cover the wastage in the process of manufacture or do they include also the breakages in handling in the works?

Mr. Varshnei.—Breakage does not mean entirely wastage.

President.—Because it goes back?

Mr. Varshnei.—Yes. Labour is lost and fuel is lost.

President.—When you are making a globe, you have got to crack off the ends, and you waste a certain amount of glass?

Mr. Varshnei.—Yes.

President.—Having got your finished globe, if the workman in handling the globes drops it and it breaks, you have got to allow for that. All this is included in this 40 per cent?

Mr. Varshnei.—Yes. 20 per cent. is the breakage on the number of articles and another 15 to 20 per cent. has been allowed for in the cutting of ends.

President.—Is there likely to be any difference in the wages paid to workers between globes and bottles?

Mr. Varshnei.—In my factory there is no difference. I know of factories where they do make a difference.

President.—What about packing materials?

Mr. Varshnei.—In chimneys and globes we have got to use paper. For Rs. 10 worth of bottles we use either gunny bags or baskets, so the packing of bottles is cheaper and no wrapping is required.

President.—Globes would be 10 per cent. more expensive?

Mr. Varshnei.—Taking both these things into account, packing and wrapping, that would be about right.

President.—Is there any other item to be taken into account?

Mr. Varshnei.—These are the three items, raw material, breakage and difference in packing. I may mention in this connection there is another difficulty. Often times we reject lots of bottles. They go as second class bottles. So is the case with chimneys and globes. The rejections in both cases will come to 5 per cent.

President.—As regards this question of second class goods, if you have more or less the same proportion of second class goods in the case of both chimneys and bottles, they cancel out.

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—I would like to ask you a few questions regarding the history of your Association and its working. You have in the very first note that you sent in, told us that the All-India Glass Manufacturers Association did not wish to press the point of protection for blown wares?

Mr. Varshnei.—I have said that they do not want to press the point of protection for blown wares. That is what I have mentioned.

Mr. Rahimtoola.—I should like to know what this Association is?

Mr. Varshnei.—It was some time in 1925—I am sorry I have not got the exact date—that we formed the Association called the All-India Glass Manufacturers Association. When we applied to Government for the protection of this industry, the application was sent by the Secretary of this Association. Ever since, we continue to meet. We have our annual gatherings.

Mr. Rahimtoola.—My point is this. In the statement which you sent to the Government of India, you said that there were 58 companies in existence.

Mr. Varshnei.—Not at that time.

Mr. Rahimtoola.—In 1920?

Mr. Varshnei.—In 1921, 58 (since corrected) companies were in existence.

Mr. Rahimtoola.—You have made a statement that out of 58 glass factories 50 closed down for want of protection.

Mr. Varshnei.—In 1920 there were 58 companies and by and by the number dwindled down to eight because they could not make money.

Mr. Rahimtoola.—In 1927, there were only 8 factories in existence?

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—In 1931, when you sent us a statement, it appears there were about 20 factories in India.

Mr. Varshnei.—I do not know. Perhaps in those 20 factories are included bangle factories and blown ware factories. At present I don't think there are more than 12 or 13 blown ware factories.

Mr. Rahimtoola.—You have supplied us with a list. On counting the number given in the list I find it comes to 8 in the United Provinces?

Mr. Varshnei.—Blown ware factories?

Mr. Rahimtoola.—The question of protection was to the glass industry which I understand includes the bangle industry.

Mr. Varshnei.—But the Association with which I am concerned is concerned only with blown wares and not with any other kind.

Mr. Rahimtoola.—There were only 8 factories in 1927?

Mr. Varshnei.—We were only 8 at that time.

Mr. Rahimtoola.—Subsequently the number has increased in spite of the fact that there was no question of protection.

Mr. Varshnei.—They have come in more to suffer loss than to make money.

Mr. Rahimtoola.—That is a matter with which each factory will deal separately?

Mr. Varshnei.—When you asked my opinion, I thought that I should qualify the statement by saying that they had come in more to suffer loss than to make money.

Mr. Rahimtoola.—My point is this. I don't believe that any business man would, with open eyes, invest his money and engage himself in an industry when he knows for certain that he is going to lose money.

Mr. Varshnei.—A business man would like to make money. When he sees that other people are going on, he pre-supposes that they would be making money. As a matter of fact, some of the factories did declare some profit in the past. You will also find from our balance sheet that we declared a dividend of 10 per cent. in 1927. That was probably an encouragement for them. As a matter of fact—I do not know what the position is at present—at least last year most of the factories did not make any profit.

Mr. Rahimtoola.—Are you aware of any blown ware factories which have not joined your Association?

Mr. Varshnei.—Yes, there were some in Calcutta.

Mr. Rahimtoola.—I am talking of to-day.

Mr. Varshnei.—There are some in Calcutta who have not joined our Association.

Mr. Boag.—Your Association does not represent the bangle makers?

Mr. Varshnei.—No.

Mr. Boag.—The bangle industry is entirely a separate industry so far as your Association is concerned?

Mr. Varshnei.—Yes. Referring to Mr. Rahimtoola's question, I may say that the Calcutta factories have not joined us.

Mr. Rahimtoola.—You are talking of factories who are members of your Association?

Mr. Varshnei.—Exactly.

Mr. Rahimtoola.—They don't wish to have protection at this juncture for blown ware?

Mr. Varshnei.—At the time when I wrote those replies to your questionnaire, that was their idea. Now on second thought some members have begun to think that it is necessary that we should have protection.

Mr. Rahimtoola.—So the Association wishes to revise its decision.

Mr. Varshnei.—Not the Association as such but the individual members.

Mr. Rahimtoola.—How far is the decision of the Association binding on its members?

Mr. Varshnei.—I do not know. It is for you to guess now.

Mr. Rahimtoola.—It is for you to tell us. You are the President of the All-India Glass Manufacturers Association and it is for you to tell us how far a resolution which has been passed by the Association and which has been communicated to us officially by you is binding on its members?

Mr. Varshnei.—If it was taken as binding, certainly they would not come forward with the idea of asking for protection. The fact that they are doing so shows that they are revising their decision.

Mr. Rahimtoola.—That means you have very flexible rules?

Mr. Varshnei.—We are flexible in this world.

Mr. Rahimtoola.—I hope you are. As regards the question of window panes and sheet glass, you have given us to understand that yours is the only factory at present in existence which is making window panes and sheet glass.

Mr. Varshnei.—Yes, plain window panes and sheet glass.

Mr. Rahimtoola.—You are asking for protection for window panes and sheet glass because you think that that also contains the articles which are manufactured by the Allahabad Glass Works at Naini?

Mr. Varshnei.—They have plant for making figured glass. They did make that for some time but as they could not stand the competition from other countries, they have closed it.

Mr. Rahimtoola.—That means what?

Mr. Varshnei.—For plain glass, ours is the only one and for figured glass, there is another one.

President.—Supposing we decided to grant protection for sheet glass and proposed a duty applicable to sheets, would that automatically apply to figured glass?

Mr. Varshnei.—Really speaking at present as our figures of import stand, both the sheet glass and the figured glass are lumped together. Therefore I should think that whatever duty will be recommended for sheet glass would apply to the figured glass as well.

President.—Do the import figures with regard to plain sheet glass include the figure for figured glass?

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—But you are not able to distinguish at present the value to be attached to the figured glass as such?

Mr. Varshnei.—To the best of my knowledge there is none.

Mr. Rahimtoola.—The total value of imports of plate and sheet glass in 1930-31 is Rs. 23 lakhs, is it not?

Mr. Varshnei.—The total value for 1929-30 that I have is Rs. 30 lakhs.

President.—The figure for 1930-31 is lower.

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—In 1929-30, it was Rs. 30 lakhs.

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—Do you think that if a duty is proposed or if protection is granted to the sheet glass industry, as distinct from other articles of glass, the question of figured glass will have to be taken up separately?

Mr. Varshnei.—It includes not only figured glass but also plate glass.

Mr. Rahimtoola.—Your factory is based on sheet glass. There is another factory which is based on figured glass. There are other factories making other articles. My point is this. In determining the question of protection I want to know whether the Tariff Board should make one uniform duty applicable to all or whether the Board should recommend separate duties for different wares assuming that a case for protection is made out. If the Tariff Board decide to recommend protection, will the duty that they may fix for one be adequate say for figured glass?

Mr. Varshnei.—My friend who is interested in figured glass says that he also wants 100 per cent. protection. That means if the duty that you may recommend is inadequate, it will be inadequate for both; on the other hand, if it is adequate, it will be adequate for both.

Mr. Rahimtoola.—The question is that you are asking for the same duty in both cases?

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—It means that the industry will be able to protect itself by this duty?

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—In your reply to Question 3 (b) you say that one of the reasons why you closed the plant for window panes was some defective working of the plant.

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—How far back was that?

Mr. Varshnei.—In 1923.

Mr. Rahimtoola.—In 1923 you started it, then you closed it and again restarted it.

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—During these 5 years you found it defective?

Mr. Varshnei.—At first we suffered a very heavy loss. We were trying to make up our loss and set aside a reserve of Rs. 2 lakhs. Only when we were able to have that much reserve, we thought of starting again. In the meantime we were making investigations as to what we should do, what other plant we should purchase and what persons we should get trained. All these things took us that much time.

Mr. Rahimtoola.—Do I understand that the defective working of the plant has been remedied now?

Mr. Varshnei.—At that time we had one gas plant which was designed according to the kind of coal available in America. The calorific value of that coal was much higher than ours. Therefore that gas plant did not work well. It was not sufficient to heat our glass. Hence we had to stop working. Now we have reorganised the plant. Everything that we have—producers and other things—has been planned and designed for the kind of materials we have to use, and according to the calorific value of our coal.

President.—Even then it was a fourcalt plant?

Mr. Varshnei.—No, it was a cylinder.

Mr. Rahimtoola.—In your reply to Question 6 (d) you say “we are also advantageously situated in respect of labour”. Is it not a fact that labour is abundantly available at all places? The question that arises is the question about wages, is it not?

Mr. Varshnei.—Yes, you are right.

Mr. Rahimtoola.—You don't mean to say that labour is not available at other places?

Mr. Varshnei.—In India we have plenty of labour available.

Mr. Rahimtoola.—You say that you are advantageously situated. I say that there are others and that you are also one of them.

Mr. Varshnei.—Yes. I have also mentioned the rate.

Mr. Rahimtoola.—You have. That is the reason why I asked that question. I would like you to explain a little more fully your answer to question 8 (1), regarding the disadvantage of higher breakage in transit in your case.

Mr. Varshnei.—The thing is that, from Bombay, Karachi and Calcutta when the goods come they generally make a complete wagon for a place between two junctions so that the wagon goes straight. For example, suppose the thing has to be delivered at Chandausi, they will make a full wagon for goods which are to be distributed between Aligarh and Bareilly so that without any transshipment at Bareilly the wagon is attached to a train which goes to Aligarh and whatever goods is for Chandausi is taken out there, whatever goods there is for any other station on the line is taken out so that most of the transshipment is avoided. We have not got so much goods for places between two junctions so that we have to put things for Lucknow, Allahabad or Patna together. What it comes to is this: when the wagon reaches Lucknow the goods for that station is taken out there: goods for Cawnpore will be put in another wagon, goods for Allahabad in another wagon, goods for Patna in another wagon and so on, so it is bound to have transshipment. The result is that the more transshipment there is, the greater the breakage.

Mr. Rahimtoola.—As it is a complaint either it should be remedied or there should be some reason for maintaining it.

Mr. Varshnei.—The reason for maintaining it is that Bahjoi is not a big exporting place.

Mr. Rahimtoola.—Have you any complaints to make against the Railway authorities?

Mr. Varshnei.—I say this is the disadvantage we have.

Mr. Rahimtoola.—So far as any disadvantage is concerned which is mentioned in a written representation to the Board, it is the duty of the Tariff Board to go into it to see whether it can be remedied to the interest of the Indian industry.

Mr. Varshnei.—What I have mentioned is that this is a disadvantage as compared with imported goods, but at the time I sent in my written representation it did not occur to me that I was asking the Tariff Board to remedy it. However now I request the Board to remedy the disadvantage as much as they possibly can.

Mr. Rahimtoola.—The object of the Tariff Board is as far as possible to try to place the Indian made article in the same position as the imported article and if there is a disadvantage to the Indian Manufacturer it is the duty of the Tariff Board to enquire into the question, and it appeared to me that you have a certain amount of grievance about this.

Mr. Boag.—I don't quite understand how it is that the importer is not liable to the same disadvantage?

Mr. Varshnei.—It happens this way, goods which are to be despatched to stations between say, Aligarh and Bareilly will all be put in one wagon and probably at the ports like Calcutta and Bombay there will be plenty of goods to make up one complete wagon. We have not got ordinarily enough goods to make a complete wagon for any one place.

Mr. Rahimtoola.—Some of the members of your Association are applying for protection. I would like to know what is your opinion in the matter?

Mr. Varshnei.—I may say frankly that if protection is given we could reach further distances than we are doing at present and avoid internal competition. So, if protection is given it will certainly be advantageous, specially after the 5 per cent. surcharge is reduced or when the exchange comes into good order.

Mr. Rahimtoola.—My point is whether you are now in favour of protection or whether you are sticking to the old opinion of the Association?

Mr. Varshnei.—I am in favour of protection for three reasons.

Mr. Rahimtoola.—In answer to question 15 you say you are not using at present Lohgarh sand. May I know if the quality is bad?

Mr. Varshnei.—Not exactly that. I have found that Lohgarh sand has got a somewhat higher percentage of iron and therefore it is not so very suitable, secondly the grains of Lohgarh sand are rather fine and therefore not suitable for better kinds of glass.

Mr. Rahimtoola.—This is your experience after you have used it?

Mr. Varshnei.—Yes: I used it for over a fortnight.

President.—The main difficulty is that it is too fine?

Mr. Varshnei.—Yes, and also the higher percentage of iron. I think when you were at Firozabad Mr. Hodkin had a chance of seeing the sand and he said that there was a higher percentage of iron in it.

President.—What is the percentage of iron?

Mr. Varshnei.—It has got 51 per cent., Panhai 4 per cent. or just a little more.

Mr. Hodkin.—In answer to question 20 you say that the quality of sand is fairly good.

Mr. Varshnei.—That is so.

Mr. Hodkin.—Do you know the amount of iron oxide in it?

Mr. Varshnei.—I have not the analysis with me. The percentage of iron and alumina in Bargarh sand is higher than in Panhai sand.

Mr. Hodkin.—What about iron oxide?

Mr. Varshnei.—From the appearance of the sand Panhai sand seems to have a lower percentage of iron than Bargarh sand.

Mr. Hodkin.—Do you think that appearance of the sand is a satisfactory measure of test?

Mr. Varshnei.—Not always.

Mr. Boag.—Who made this analysis?

Mr. Varshnei.—Some of the analyses were made by myself in our own factory and some were made at the Technological Institute at Cawnpore.

Mr. Rahimtoola.—You are importing soda ash from England, Russia and Germany? May I know what is the quantity you are getting approximately?

Mr. Varshnei.—Up to two years ago we were getting exclusively from England but after that the Haverø Trading Company and another German firm came into the Indian market. The price before these firms came into the market was Rs. 5 a cwt. and the English people subsequently increased the price to Rs. 6-4-0 a cwt., but since the Haverø Trading Company came into the market with Russian soda ash the price fell to Rs. 5-13-9. But since the Haverø have gone out of the market on account of the exchange the price has again gone up to Rs. 6-12-0 per cwt.

Mr. Rahimtoola.—You are not importing now from Russia and Germany?

Mr. Varshnei.—Not since the trouble about exchange has come in.

President.—You don't import direct?

Mr. Varshnei.—No; we buy through the Imperial Chemical Industries of India Limited.

Mr. Rahimtoola.—I want to know something about your experience of soda ash from Dhrangadhra?

Mr. Varshnei.—It is all right in quality except that it is a little light for tank purposes. For crucible also it has not got so much advantage but about a month back I had a letter that they will be able to supply the heavier quality also.

Mr. Rahimtoola.—At present they are closed?

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—Have you heard anything about their re-starting?

Mr. Varshnei.—They say they can't say definitely but they hope to restart shortly.

Mr. Rahimtoola.—In answer to question 20 regarding Indian fireclay you say this needs elaborate experiment. Do you wish to make any suggestions to the Tariff Board as to how to get this done?

Mr. Varshnei.—In the case of fireclay it is not only the composition which plays an important part, but composition as well as the physical property. Two or three clays having different physical properties can be mixed up to give better result. So that if any experiment is conducted on fireclay anywhere in India, first of all they should carry on a chemical analysis and then they should find out the physical properties of different kinds of clay.

Mr. Rahimtoola.—Is it your intention that there should be research work done in India?

Mr. Varshnei.—Certainly. Of course this kind of research work is really no research work but mixing two or three things and finding out the result. It is not very high scientific work, but two or three clays of different physical property should be mixed up to see what temperature they can stand.

Mr. Rahimtoola.—This can't be done without a laboratory. It is your intension that the Government of India should appoint experts and have a laboratory where this can be done?

Mr. Varshnei.—You have already experts and laboratories in India in which this can be done. This sort of work does not require a big furnace: it will require only a small furnace which is available in these laboratories.

For example the Technological Institute at Cawnpore or the Indian Institute of Science at Bangalore, can carry out these experiments.

Mr. Rahimtoola.—What kind of experts are you thinking of?

Mr. Varshnei.—Take for example Dr. Drane of the Technological Institute at Cawnpore; he can certainly conduct tests like this. It does not require very special knowledge. An ordinary analytical chemist can do this.

Mr. Rahimtoola.—In answer to question 24 you talk of six Belgian experts whom you brought out here and subsequently their services were dispensed with. What was the exact reason?

Mr. Varshnei.—Because they were rather costly and this put me to serious loss. Moreover the work that I could get from them could be done by my two sons who had training in Belgium.

Mr. Rahimtoola.—Your works started in 1916. When did you get these men?

Mr. Varshnei.—They came out in September 1928.

Mr. Rahimtoola.—By that time one of your two sons was under training?

Mr. Varshnei.—These people came two months after my son came out here. As soon as they came we started work.

Mr. Rahimtoola.—In answer to question 39 you say that your machinery and other equipments are up to date and that your method is identically the same. I think that is the result of your sons' visit to Belgium. Have you got personal experience to make that statement or are you satisfied that whatever machinery you have at present is up to date and efficient?

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—Though you are not able to work on an economical basis?

Mr. Varshnei.—It is not the machinery; the labour is not yet so efficient. For example, in cutting we waste a lot; on the machine our men are not able to give as much outturn as they should; at times our gas producers give trouble. My sons do correct them cut they can't all the time be on the producers.

Mr. Rahimtoola.—In answer to question 47 you make a certain complaint?

Mr. Varshnei.—I think there you can certainly take some steps to help us.

Mr. Rahimtoola.—Will you explain your point in a little more detail?

Mr. Varshnei.—The import duty at Calcutta or any other importing town is 15 per cent. According to the agreement Government has got with places like Afghanistan, Baluchistan, Kashmir, Nepal and so on when the goods enter into these territories they get a refund of $7\frac{1}{2}$ per cent. We can't get any refund; so what it comes to is that though outside these territories we are able to compete we are barred from competing by this $7\frac{1}{2}$ per cent. as our goods cost $7\frac{1}{2}$ per cent. more because of the refund they get.

Mr. Rahimtoola.—Suppose I am an importer of glass in Karachi and I want to send the goods to Afghanistan then I have got to pay 15 per cent. duty at Karachi port.

Mr. Varshnei.—Yes, and get a refund of $7\frac{1}{2}$ per cent. over there as soon as the goods cross the border.

President.—On re-export?

Mr. Varshnei.—Yes. It so happened that I had secured some order from Jammu and the exporter wrote to me that he could not get any refund on my goods while on imported goods he received $7\frac{1}{2}$ per cent. refund.

Mr. Rahimtoola.—The dealer in Kashmir receives 7½ per cent. from the Government of India?

Mr. Varshnei.—Yes.

President.—The dealer who buys imported sheet glass in British India sends that to Kashmir. The dealer pays the importer a price corresponding to the revenue duty, let us say, 15 per cent. When the dealer re-exports that to Kashmir, he gets a refund of 7½ per cent.?

Mr. Varshnei.—Yes.

President.—Now in your case when you send it into Kashmir, no question of refund at all arises.

Mr. Varshnei.—No.

President.—And therefore as far as goods sold in Kashmir are concerned, the price against which you have to compete is the c.i.f. price at Karachi plus 7½ per cent. Ordinarily in British India you compete against imported goods at c.i.f. price plus 15 per cent. revenue duty. Against goods re-exported to Kashmir, you compete at c.i.f. price plus 7½ per cent.?

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—In other words they have to pay 7½ per cent. duty instead of 15 per cent. duty.

Mr. Varshnei.—Quite so.

Mr. Rahimtoola.—On page 48, in answer to question 51 you say:—

“ During 1931 India Government and other public bodies have purchased Rs. 2,000 goods from us. United Provinces Government has issued a Notification No. 79, dated 2nd October, asking all Government and semi-Government bodies to purchase window panes and sheet glass from U. P. Glass Works, Ltd.”

May I know whether it was done by any representation that you made or whether the Government approved the quality?

Mr. Varshnei.—I approached the India Government first and then India Government approved the article and they placed an order. Then I approached the United Provinces Government and said “ India Government has approved my goods and they are purchasing from me. I hope you will also be kind enough to patronise my goods”. On that they passed this notification (Handed in).

Mr. Boag.—Have you received any orders?

Mr. Varshnei.—I am getting small orders from the United Provinces Government. I received only one order from the India Government. Here is a copy of the letter of appreciation (Handed in).

President.—Could you put in a copy of this?

Mr. Varshnei.—You can keep it.

Mr. Rahimtoola.—The United Provinces Government purchased it for their own requirements. The notification was issued for supply to the local and municipal bodies.

Mr. Varshnei.—The United Provinces Government never purchased for their own purpose. This is the first notification and afterwards I received some orders from some of the local bodies.

Mr. Rahimtoola.—I want to know on what basis this notification was issued.

Mr. Varshnei.—In 1929 my goods were approved by the India Government and then I insisted on supplying. Ultimately I had an order. I supplied that order. Then I approached the United Provinces Government and said “ Here is India Government’s certificate and the local Government must also patronise”. Afterwards that notification was issued.

Mr. Rahimtoola.—On page 48, in answer to questions 52 and also 53, there is a statement made by you that the goods imported into India are uneconomical.

Mr. Varshnei.—Yes, I say that because the goods in India—I mean the window panes and sheet glass are imported 4th quality, while we have got to sell whether it is first or second or 3rd all in India. Against that 4th quality, we have to sell all the qualities.

Mr. Rahimtoola.—That is exactly my point. If the quality is 4th class then it will fetch a lower price in India. How does it prove uneconomical to the manufacturer?

Mr. Varshnei.—As compared to us? In other words we have our competition in price with that of 4th quality of Belgium.

Mr. Rahimtoola.—You are now talking of the price which the importers receive as uneconomical. There is no comparison.

Mr. Varshnei.—Importers are not receiving uneconomical prices. They are importing at economical prices. Probably my language may not be clear and let me now make myself clear. Supposing the cost of manufacture is Rs. 100, because it is the 4th quality they dispose it off at Rs. 80 and we have to compete against Rs. 80 and against an article which is of 4th quality.

Mr. Rahimtoola.—You are not able to compete with the 4th class goods which are imported?

Mr. Varshnei.—My price cannot be 80 per cent. of the cost of production. I have to charge cent per cent.

Mr. Rahimtoola.—In your representation you tell us that you are able to manufacture about equal to the quality of imported goods?

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—That means your present quality of 1st class or second class is the 4th class of the other countries.

Mr. Varshnei.—You may take it that way. An infant industry is not supposed to produce such a nice stuff as an experienced and well established industry.

Mr. Rahimtoola.—I don't want to take it any way. I am basing my argument on the note submitted by you. You say that your goods are equal to the quality of the imported goods and when the imported goods are 4th quality, your goods are comparable to the 4th class.

Mr. Varshnei.—You have rightly understood what I have said.

Mr. Rahimtoola.—You wish to change your statement by saying that it is not uneconomical to the people who manufacture outside India, but it is uneconomical for you to manufacture at that price?

Mr. Varshnei.—Quite true.

President.—May I make quite sure of that statement? Supposing a Belgian manufacturer manufactures 1,000 tons of sheets, out of that, let us say, 250 tons is 4th quality. Now the price he charges for that 4th quality is, let us say, a price that corresponds to his labour, his materials, and his fuel and nothing more. It may be what he loses on that 250 tons of 4th quality, he recovers from a slightly higher price which he receives on the other 750 tons, but if you look at the price in relation to the price of 250 tons, that is to say looking at it in relation to the average cost of the whole lot, the price charged by the manufacturer from the manufacturer's point of view is uneconomical.

Mr. Varshnei.—I quite follow you.

President.—It is not likely that on his aggregate sales he would care to lose.

Mr. Varshnei.—No.

President.—But if you allowed on the 4th quality shipped to India the kind of price which works out at the average cost of the whole output, then you will find the price is less than an economical price.

Mr. Varshnei.—I will tell you it is not uneconomical for them. If our outturn is not consumed fully in the market at a rate which is economical

for us, then it is always necessary for us that for that quantity which is over and above the requirements, it is economical to sell the excess at a cheaper rate, because otherwise we have to stop our work and there we suffer much more than what we will lose in selling at a cheaper price.

President.—I am only anxious that your statement does not damage your own case.

Mr. Varshnei.—I do not know. We are workman class.

President.—Your statement is going into the evidence. The point is this: if the kind of goods imported against which you have to compete are goods which are second class on which a price is charged which does not correspond to the manufacturer's cost, but simply such price as the goods will fetch.

Mr. Varshnei.—And it is called dumping price.

President.—If you grant that this price is economical to the manufacturer you are knocking the bottom out of the case of dumping.

Mr. Varshnei.—It is economical in that sense.

President.—You gave us Belgian costs. I have formed a sort of general idea subject to further consideration that the f.o.b. price at which 4th quality sheets are being shipped to India by Belgian manufacturers corresponds to little more than the cost of the labour and materials in the sheet factory. If that is so, the price cannot be regarded from a commercial practice as an economical price.

Mr. Varshnei.—No. I will call it economical, because if he doesn't dispose of that goods, he had to sell it in his own country. Probably it will not fetch that much price. So the rejected goods if he sells at a cheaper price, it is called economical and that is why we sell 2nd class goods at 25 per cent. less.

President.—If I throw my wasted goods into a market where another manufacturer tries to make an honest living, do you suggest that the practice is a fair practice?

Mr. Varshnei.—It may or may not be a fair practice. In business one cares for his own interest (since corrected).

President.—Generally you find with regard to all goods, export prices are lower than current internal prices.

Mr. Varshnei.—Yes.

President.—There is a certain margin of difference. When the margin of difference amounts to about 100 per cent., then it is not ordinary commercial practice.

Mr. Varshnei.—I do not know if they have got this idea or not. As I have already told you in 1927 the price was Rs. 7-12-0; in 1928 it was Rs. 7-8-0; it came to Rs. 7 in 1929 and in 1931 they have brought it down to Rs. 6-4-0. I may be wrong in my reading. What I read from these figures is this: as we have started a factory over here, they want to crush it. They perhaps say to themselves: "we don't care for a year or two or even three if we go on dumping our goods and if their factory is ultimately closed, we will have a chance later on to make a profit". I don't know if that is their idea. This can be their idea, otherwise I don't understand how their price can be so cheap. Their processes are just the same as they were 4 years ago. The cost of production was nearly as much as it is to-day, but their price in India has gone down by something like Rs. 1-8-0 per case.

President.—If you are satisfied that it is legitimate competition, I have nothing to say.

Mr. Varshnei.—It is never a legitimate competition. It is after all competition and in some cases it may be called by any bad name.

Mr. Rahimtoola.—On page 15, in answer to question 55 you say: “the value given in b, c and d which comes to Rs. 6,95,000 includes the amount of depreciation”. May I know how much is it?

Mr. Varshnei.—Depreciation fund up to 1929 was Rs. 1,67,572-15-0.

Mr. Rahimtoola.—Out of that Rs. 1,67,000 has to be deducted?

Mr. Varshnei.—Yes if you want to arrive at the present cost of machinery and buildings.

Mr. Boag.—You mean Rs. 6,95,000 less Rs. 1,67,000?

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—On page 16 you say no dividend is paid since the plant was started. That means restarted?

Mr. Varshnei.—Yes from 1928.

Mr. Rahimtoola.—Not from 1923?

Mr. Varshnei.—No. In 1925 we declared a dividend.

Mr. Rahimtoola.—In answer to question 56 (3) you say:

“The staff working in the chimney plant was engaged for the supervision of construction while they were paid by the chimney plant.”

Mr. Varshnei.—The superior staff, for example, myself, my two sons, the engineers—all these people had to supervise that work although we charged them to chimney plant.

Mr. Rahimtoola.—Don't you allocate?

Mr. Varshnei.—No. We thought as long as the cow doesn't give milk, we could not count on that.

Mr. Rahimtoola.—You know it is not the way to do?

Mr. Varshnei.—I agree. I know it is a wrong way.

Mr. Rahimtoola.—Another point is if you are now confining your attention as I understand you do only to the sheet glass?

Mr. Varshnei.—I am doing both.

Mr. Rahimtoola.—You are at present. Sometime before your opinion was for asking for protection for sheet glass only. At that time it was very necessary to find out what the cost actually would be. If you had allocated, it would have given us an idea.

Mr. Varshnei.—Yes, but we didn't do it.

Mr. Rahimtoola.—In answer to question 62, you have said that it would take several years to attain the efficiency regarding breakages as in foreign countries. I suppose it is due to deficiency in labour.

Mr. Varshnei.—Exactly.

Mr. Rahimtoola.—In your reply to Question 67 (a) you are talking of hydro electric supply. May I know from where you expect to get it?

Mr. Varshnei.—We have got hydro electricity up to Chandausi. We are only about 11 miles from Chandausi.

Mr. Rahimtoola.—You have had no conversation with them?

Mr. Varshnei.—I did have. So far they are not prepared to come farther than Chandausi.

Mr. Rahimtoola.—Therefore there is no immediate prospect.

Mr. Varshnei.—No. It may be after a year or two, but not this month or next month. There is another trouble. They do not guarantee a continuous supply. If there is any breakdown even for a minute, then all the machines will come to a stand still. We will lose much in that case.

Mr. Rahimtoola.—That means you are still in correspondence with them?

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—In your reply to Question 68, you talk about the duty. I suppose you actually mean 75 per cent. over and above the surcharge, that is to say 100 per cent. inclusive of the surcharge?

Mr. Varshnei.—In my answer you will find that I have based my calculation on Rs. 5 as the c.i.f. As long as Rs. 5 remains as the c.i.f. price, that is necessary.

Mr. Rahimtoola.—Does that Rs. 5 include the Customs duty?

Mr. Varshnei.—No.

Mr. Rahimtoola.—You are asking for a duty of 75 per cent. over and above the present duty which includes the surcharge?

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—In 67 (c) you are asking for the protection of plate glass though at present no factory in India is manufacturing plate glass?

Mr. Varshnei.—I am asking for that because if you protect sheet glass and leave out plate glass, then plate glass will become cheaper and will take the place of sheet glass.

Mr. Boag.—What is the difference in price now?

Mr. Varshnei.—I haven't got very much idea about plate glass. But my friend behind says that it all depends on the size.

Mr. Boag.—Is the difference more than 100 per cent.?

Mr. Varshnei.—I can tell you from my personal experience about the sheet glass which is of small size—say 7/5 or 8/6. At Delhi we can get plate glass of that size at the rate of 4½ annas per square foot and my sheet glass of the same thickness is being sold at 3 annas 9 pies. That means a difference of 9 pies which will work out to something like 20 per cent.

Mr. Rahimtoola.—I asked you this question because I wanted to make the position rather clear that you were asking for the protection of plate glass simply because plate glass might take the place of sheet glass?

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—I want to know whether that is the only reason or whether you still contemplate making plate glass in India?

Mr. Varshnei.—Certainly, I myself might go in for that.

Mr. Rahimtoola.—You have not got the necessary equipment for that, have you?

Mr. Varshnei.—The grinding and polishing plant I have already got. It is only the table that is required.

Mr. Rahimtoola.—What would that cost?

Mr. Varshnei.—It would not cost more than Rs. 50,000.

Mr. Rahimtoola.—At present there is no factory in India which manufactures plate glass?

Mr. Varshnei.—No.

Mr. Boag.—Is that Rs. 50,000 based on any definite enquiries that you made?

Mr. Varshnei.—Yes. In the beginning I was for making plate glass. Then I changed my opinion and went in for sheet glass.

Mr. Rahimtoola.—In the representation made to the Government of India by the All-India Glass Manufacturers Association, certain other items are mentioned for protection. This is what is said in paragraph 5 of that representation. "At present there is an *ad valorem* import duty of 15 per cent on soda ash which is used in large quantities in the manufacture of glass and which has to be imported. This duty is a positive handicap on this industry since this raw material is an essential one. The crucibles or pots which have also to be imported to a great extent have to pay an import duty of 15 per cent." May I know whether you have any suggestions regarding these?

Mr. Varshnei.—Soda, crucibles and other chemicals we import now. If the duty is reduced on these, it would mean so much protection to us.

Mr. Rahimtoola.—If in arriving at a scheme of protection the Tariff Board takes into consideration the present duty and the duty on soda ash and crucibles, you will be satisfied?

Mr. Varshnei.—It will be all the same to us whether you take it off here or give it there.

Mr. Rahimtoola.—Your present proposals do not emphasise these?

Mr. Varshnei.—I am emphasising the cent per cent. duty.

Mr. Rahimtoola.—That means you are not emphasising these points?

Mr. Varshnei.—Not over and above that. Cent. per cent. duty will serve my purpose, but probably a case may come before you from the bangle manufacturers saying that it is the chemicals that affect them.

Mr. Rahimtoola.—So far as you are concerned you will be perfectly satisfied if the duty is increased and you will not insist on getting protection for the things mentioned in the representation of the Glass Manufacturers Association?

Mr. Varshnei.—In my individual capacity I can tell you I shall be satisfied.

Mr. Boag.—I should like to go back to the subject of your Association. What are its objects?

Mr. Varshnei.—The development of the glass industry in India.

Mr. Boag.—Generally?

Mr. Varshnei.—Yes.

Mr. Boag.—On what particular lines is the Association working? What has it done?

Mr. Varshnei.—We meet together and discuss questions about controlling the market, improving the quality, representing to the Tariff Board, etc.

Mr. Boag.—Have you been able to do anything in the way of marketing?

Mr. Varshnei.—Several times we did combine and keep up the price and several times we also failed.

Mr. Boag.—You can quote instances in which you have achieved some result?

Mr. Varshnei.—In 1929 we came to some sort of understanding about rates and we went on for some time for a year or so and then we failed.

Mr. Boag.—Why did the arrangement break down?

Mr. Varshnei.—We fought amongst ourselves.

Mr. Boag.—What about improving the quality? How do you set about it?

Mr. Varshnei.—We meet together and discuss things. We read papers about furnace improving, about raw materials and so on.

Mr. Boag.—You have not considered the possibility of setting up any technical organisation?

Mr. Varshnei.—We are too poor to think of that.

Mr. Rahimtoola.—You had a Technological School in 1908?

Mr. Varshnei.—Where? You mean the one at Talegaon?

Mr. Rahimtoola.—You have done some work there?

Mr. Varshnei.—I do not know I can take much credit for that. But it cannot be denied that we have done some work.

Mr. Rahimtoola.—You have been able to train one man who has started a factory in Satara?

Mr. Varshnei.—Yes. There are several such.

Mr. Rahimtoola.—You can be proud of them?

Mr. Varshnei.—I thank you so much for saying that.

Mr. Boag.—When we were in Calcutta we heard that the Glass manufacturers in Bengal formed an Association of their own?

Mr. Varshnei.—I have been told so.

Mr. Boag.—Has your Association any relation with them at all?

Mr. Varshnei.—We are sister Associations.

Mr. Boag.—You are in competition with them?

Mr. Varshnei.—I don't think that we are in competition. There is not very much competition in price with the Calcutta people. They don't sell their goods very much outside Calcutta. They generally sell their goods right in Calcutta itself. We cover a very large area in India.

Mr. Boag.—Apart from the factories in Bengal, your Association represents the whole of the rest of India?

Mr. Varshnei.—Yes.

Mr. Boag.—Are there any manufacturers outside Bengal who are not members of your Association?

Mr. Varshnei.—There is one factory in Gondia. Some time back they also applied to us and expressed a desire to become a member, but I do not know what became of that.

Mr. Boag.—As regards your answer to question 4, I should like to be certain whether I have understood it correctly or not. I have noted that the weight of each box will be 146 lbs.

Mr. Varshnei.—Yes, it will be 144 to 146 lbs. including packing.

Mr. Boag.—How much is packing out of that?

Mr. Varshnei.—120 lbs. is the weight of glass.

President.—Taking sheet of about 17 to 18 oz.?

Mr. Varshnei.—That will be 18 to 19 oz.

President.—If you take your average of 16 oz.

Mr. Varshnei.—We have not been able to achieve that. Next month I may be able to achieve that.

Mr. Boag.—Could you tell us exactly how you arrived at those figures given in your answers to questions 11 and 12?

Mr. Varshnei.—I took down the weight of the production and then divided it according to my proportion. In this connection I may tell you that if you add the weight of sand, soda, lime, salt cake, etc., the weight will come to much more than 120 lbs. per box. But the difference is due to the loss in melting.

President.—We understand that.

Mr. Boag.—In giving these figures you worked back from the weight of glass produced?

Mr. Varshnei.—Exactly, that is what I have done.

Mr. Boag.—You have not taken the weight of the materials you used?

Mr. Varshnei.—No. What I have done is this. This production is our imaginary production. It is not our actual production.

Mr. Boag.—It is on the assumption that you work to your full capacity?

Mr. Varshnei.—Yes.

Mr. Boag.—I notice that you put down your requirement of coal at 10,000 tons?

Mr. Varshnei.—Yes.

Mr. Boag.—You told us this morning that you did not expect to get down to a lower consumption than 2 tons per ton of glass?

Mr. Varshnei.—Yes,

Mr. Boag.—If you work on your figure of 120 lbs. per box, you will find that 10,000 tons of coal will come to something considerably less than 2 tons of coal per ton of glass.

Mr. Varshnei.—The calculation may be wrong. Have you made allowance for CO₂ which will go away?

Mr. Boag.—No. I am simply taking your maximum production at 120 lbs. a case and your 10,000 tons of coal. It is below 2 tons of coal per ton of glass.

Mr. Varshnei.—The weight of glass will be somewhere about 5,000 tons and I have put down 10,000 tons of coal.

Mr. Boag.—It is a good deal more than 5,000 tons. It is 5,750 tons.

Mr. Varshnei.—Does it come to that?

Mr. Boag.—It comes to somewhere about that.

Mr. Varshnei.—Then, instead of 10,000 tons, it will probably be 12,000 tons.

Mr. Boag.—I notice in your cost statement that you do not give cost for the salt cake which you use.

Mr. Varshnei.—I have included that in soda.

Mr. Boag.—The only other question which I want to ask you about is depreciation. You told us this morning that you included depreciation under miscellaneous costs. What rate have you allowed?

Mr. Varshnei.—We have done it in this way. We have window glass plant and chimney glass plant. As regards the window glass plant, whatever buildings there are, we depreciate at 2½ per cent.

Mr. Boag.—You have given us actual figures (see your reply to Question 54). The value of land and buildings is given as Rs. 1,12,480. You have taken 2½ per cent. on that?

Mr. Varshnei.—Yes.

Mr. Boag.—Do you show the value of lands and buildings separately?

Mr. Varshnei.—No. The value of land has been included in buildings. In fact the value of my land has been very low and I have purchased it for about Rs. 3,000 and so I don't give it separately.

Mr. Boag.—Land does not depreciate as much as buildings?

Mr. Varshnei.—No. But Rs. 3,000 is very little.

Mr. Boag.—At what rate have you taken the depreciation on machinery?

Mr. Varshnei.—10 per cent.

Mr. Boag.—That will come to how much?

Mr. Varshnei.—The block value of plant and machinery is Rs. 5,82,485. 10 per cent. on that will be about Rs. 58,250.

Mr. Boag.—That is Rs. 58,000 and Rs. 2,500. That comes to considerably more than your miscellaneous expenses. Your miscellaneous expenses in 1931 were only Rs. 16,000.

Mr. Varshnei.—I have divided that by 365 days; whatever days we have worked we have allowed depreciation.

Mr. Boag.—You have taken depreciation at so much a day for the days that you have actually worked?

Mr. Varshnei.—Yes. That is how I have calculated.

Mr. Hodkin.—With regard to sand you can apparently draw your supplies from five places: do you get your sand ready crushed or do you get it in lump?

Mr. Varshnei.—All crushed.

Mr. Hodkin.—Do you know whether your sand is selected or does it come from all parts of the quarry mixed together?

Mr. Varshnei.—I tried my best that it should be washed or sorted but I have so far been unsuccessful.

Mr. Hodkin.—In none of the five places is the sand selected? It is not washed?

Mr. Varshnei.—Not at all.

Mr. Hodkin.—Is there no grading done?

Mr. Varshnei.—They shift through 30 mesh sieve.

Mr. Hodkin.—There is no question of removing the smallest particles?

Mr. Varshnei.—No.

Mr. Hodkin.—You found that your Lohgarh sand is exceedingly fine: does that apply to Bargarh and Panhai sand?

Mr. Varshnei.—They are coarse sand which can go through 30 mesh. In Lohgarh you will find a good deal going through 100 mesh.

Mr. Hodkin.—As regards limestone does that come to you in lump?

Mr. Varshnei.—Yes. I crush them myself.

Mr. Hodkin.—Do you use Burnt lime?

Mr. Varshnei.—Yes, in globes and chimneys.

Mr. Hodkin.—Do you burn it?

Mr. Varshnei.—I burn it myself.

Mr. Hodkin.—Do they burn any lime at Katni?

Mr. Varshnei.—Yes.

Mr. Hodkin.—And you can purchase burnt lime direct from there?

Mr. Varshnei.—Yes, but I prefer to burn my own as they do not select the lime and it is mixed up with all sorts of rubbish.

President.—When we were discussing this morning the possible reduction in costs under materials, we decided to make no changes in the figures.

Mr. Varshnei.—Yes, for the present.

President.—The proportion of the materials that you give in answer to question 12, viz., sand, soda, lime and salt cake—assuming those figures approximately represent your actual practice now—there you have a total quantity of materials of 2,735 lbs. out of which you get 2,240 lbs. of glass.

Mr. Varshnei.—Yes.

President.—That gives you a loss in melting of somewhere about 495 lbs. That represents loss in melting of 18 per cent.?

Mr. Varshnei.—That is right.

President.—Can't we make some reduction on that?

Mr. Varshnei.—It is impossible.

President.—Can't you work down to about 15 per cent.?

Mr. Varshnei.—Impossible.

President.—I have a practical object in putting this question. The total cost of your materials per 100 cases excluding refractory materials comes to Rs. 276. If you could reduce it from 18 to 15 per cent. you will save about Rs. 45 which is a very considerable saving.

Mr. Varshnei.—It is. But there are two things; one is quick melting. I have been a very keen student while I was working as an assistant manager in a factory in Boston I made a thorough investigation about it and I found that in tanks when calcium carbonate is used less loss in weight than 18 per cent. is practically impossible.

Mr. Hodkin.—Can we take this as your batch composition; you actually mix your materials in those proportions?

Mr. Varshnei.—Yes.

President.—You don't consider there is a possibility of making a reduction in the consumption of materials apart from prices?

Mr. Varshnei.—I don't think there is any loophole whatsoever; except in coal and in price.

President.—Look at your answer to question 49. These prices in the second column, these are really net prices *ex-works*?

Mr. Varshnei.—No. These are prices realised.

President.—Does the price represent the price that you realised for 100 square feet, deducting from your realisation discount, commission and selling expenses?

Mr. Varshnei.—No.

President.—Take this Rs. 7-9-0 in 1931?

Mr. Varshnei.—It includes merchants' commission, agents' commission, everything.

President.—What is likely to be the net realisation?

Mr. Varshnei.—It will be somewhere about Rs. 7-4-0. Rs. 30 per 100 cases is selling expenses; that comes to about As. 5 per case. If you deduct that from Rs. 7-9-0 it will come to about Rs. 7-4-0.

President.—Are there any outgoings that have got to be set against this Rs. 7-9-0 except this selling expense. That is to say, having paid your labour, paid for your raw materials and expended all the monies due on that sort of thing, is there anything else: is there any freight for example?

Mr. Varshnei.—No; we don't give any free delivery. We give only f.o.r. Bahjoi. It is only in the case of chimneys and globes that we give outside delivery. Apart from Government contract we don't give any railway freight to any body; our quotation is f.o.r. Bahjoi. May I give you an idea about imports from other countries which I trust will be of interest to you? Up to 1923-24 the supplies of sheet and plate glass were exclusively from Belgium and the United States of America. After that Germany has entered the country and is regularly supplying about Rs. 1,25,000 worth of goods: Czechoslovakia entered in 1929-30 and is now supplying to the extent of about Rs. 2 lakhs in a year. On the contrary British goods have considerably reduced though formerly we used to have from England these sheets and plates up to the value of Rs. 14 lakhs, say in 1921-22, and now it has reduced to Rs. 5 lakhs in 1929-30. That is a point worth noting.

President.—I may point out in that connection that in your calculation you have taken the value of plates and sheets in the import returns and taken about half as representing sheets. We addressed all the Collectors of Customs and asked them to tell us what in terms of value the proportion between sheets and plates was and practically all the letters that we have received indicate that the value of sheets is considerably higher than the value of plates.

Mr. Varshnei.—It is a good information to me!

President.—I am inclined to think that if you take 1930-31 figures, out of Rs. 23 lakhs about Rs. 15 lakhs is sheets.

Mr. Varshnei.—I thank you for the information.

The Allahabad Glass Works, Naini, Allahabad.

A.—WRITTEN.

(1) *Letter dated the 2nd January, 1932.*

I have the honour to submit eight copies of our answers to your questionnaires.

Enclosure.

Answers to questionnaire framed by the Indian Tariff Board for the Allahabad Glass Works, Naini.

1. The Allahabad Glass Works is a privately owned concern of Rai Bahadur Jagmal Raja.
2. The superior management are entirely Indian.
3. The Factory commenced work in June, 1913.
4. The Factory is equipped with the following plants:—
 - (a) Four Tank Furnaces with varying capacities of 55, 70, 120 and 175 tons.
 - (b) Four Pot Furnaces—One with 10 pots of 600 lbs. each, two with 7 pots of 800 lbs. each and one with 7 pots of 1,600 lbs. each.
 - (c) Four O'Neill and one Lynch Complete Automatic Machines with Miller Feeders.
 - (d) Six Foster's Semi-Automatic Machines.
 - (e) Six Mellin's Press and Blow Machines.
 - (f) Three Hand Presses.
 - (g) One Figure Glass Machine.

Besides working these machines wares by mouth blowing system are also made.

The estimated daily outturn of different manufactures in the factory when worked to its full capacity may be put down as under:

Bottles (8 to 32 oz.) 416 gross.

Medicinal Phials (1 oz. to 8 oz.) 694 gross.

Lantern Globes, Electric Shades and Chimneys, etc., 69 gross.

Figure Glass 15,000 to 20,000 sq. ft.

As against the aforesaid estimated outturn when worked to the full capacity our present daily output is limited to the following:—

Bottles (8 to 32 oz.) 65 gross.

Medicinal Phials (1 to 8 oz.) 175 gross.

Lantern Globes, Electric Shades and Chimneys, etc., 25 gross.

Figure Glass Nil.

5. We manufacture the following varieties of glassware. The quantities manufactured during the last four years are as noted against each year:—

Kinds of wares.	1927.	1928.	1929.	1930.
	Gross.	Gross.	Gross.	Gross.
1. Bottles—				
Cod bottles	722	1,000	1,200	1,825
Crown cork bottles	310	690	800	1,000
Whisky and brandy bottles	1,169	66	1,565	1,435
Whisky and brandy $\frac{1}{2}$ Pint	3,734	4,942	6,024	8,044
Tincture bottles	2,008	2,162	3,982	3,213
Chutney and pickle bottles	...	...	61	290

Kinds of wares.	1927.	1928.	1929.	1930.
	Gross.	Gross.	Gross.	Gross.
1. Bottles— <i>contd.</i>				
Wide mouth stoppered and unstoppered bottles	107	470	200	513
Narrow mouth bottles	216	699	1,670	882
Screw top wide mouth bottles and jars	...	...	3,000	362
2. Medicinal and hair oil phials	15,228	16,665	36,990	40,605
Boot polish and inkpots	90	25	...	1,000
3. Lantern and lamp globes and chimneys	...	1,382	2,542	5,771
4. Illuminating wares (table lamps, domes, shades, Langham and other various designs)	...	...	800	1,250
5. Ornamental figure and ribbed glass	...	200,000 sq. ft.		

6. The factory is situated at Naini only 4 miles from Allahabad City. It is on the junction of the East Indian and Great Indian Peninsula Railways and it has also a Railway siding of its own right into the premises of the factory:—

(a) The situation is advantageous with respect to the vicinity to the areas supplying sand and lime. The supply of sand is drawn from Lohagra—a distance of 12 miles and that of Lime from Katni—a distance of 170 miles. The supply of Soda Ash manufactured in India, is drawn from Dhrangadhra in the Province of Kathiawar, while that imported from England, is drawn from Calcutta, the distances being miles and 512 miles, respectively.

(b) The supply of coal is drawn from Jharia and Ranigunj Coal Fields, the distances being 345 and 390 miles, respectively, while Oil Fuel is drawn from Calcutta—512 miles. The situation as regards the supply of Soda Ash, Coal and Fuel Oil is not so very advantageous.

(c) The situation of the Factory being in the centre of the country, the important markets come to be more or less at an equidistance.

(d) The supply of labour and packing materials is quite abundant.

7. The important factors in selecting a site for a Glass Factory in India are a close vicinity to the sources of the supply of raw materials and also to the important markets having regard to the sufficient supply of labour and packing materials, besides facilities for easy transports.

8. Our products do not command the same prices as those of the imported articles simply because of the general tendency on the part of the purchasers to attach a lower value to the home-made articles than to the foreign ones. This natural apathy is a stigma which no country has been able to undo except by way of protection to the industry.

Moreover, at Junction Stations, where goods are transhipped, they are roughly handled, and as such the percentage of the breakage in the transit comes as heavy as 3 to 5 per cent.

9. The production is not limited to any season. The work continues throughout the year and is closed only for want of demand, when stocks become heavily accumulated, or when any important repairs have to be carried out. The cost of production necessarily bears to the output and as such, it must be heavy when the production has to be curtailed or temporarily stopped, for, in such eventualities the skilled labour and the supervising staff cannot be dispensed with, whereas if the factory works to its full capacity, the cost of production must naturally be the most minimum.

10. The following materials are used in the manufacture of glass:—

Silica sand, soda ash, lime, saltcakes, borax, saltpetre and coal.

The fire-resisting materials include fire-bricks and blocks and crucibles.

11. The estimated quantities of the raw materials required per year for the total output equivalent to the full capacity of the plant are as follows:—

Silica sand	18,000 tons.	}	Lime	3,600 tons.
Soda ash	7,200 ,,		Coal	54,000 ,,

Fire-bricks, blocks, blungers, pots, etc., worth Re. 1 lac.

12. The production of one ton of glass requires the following:—

Sand	20 cwts.	}	Lime	4 cwts.
Soda ash	8 ,,		Coal	3 tons.

13. This has been answered (para. No. 6).

14. The coal is raised in our own colliery and thence railed to Naini.

The sand rocks are crushed at our own quarry by manual labour and the powder is transported to the nearest Railway station by camel loads for onward despatch.

Soda ash imported from England is supplied by the Imperial Chemical Industries (India), Ltd., Calcutta, and that manufactured at Dhrangadhra in Kathiawar, is supplied by the Shakti Alkali Works all the way by Rail.

The packing materials such as baskets, straw, etc., are local products and they are supplied at the factory.

Wooden boxes are, however, supplied from Calcutta.

15. No Royalty is paid.

16. The cost of raw materials per ton delivered at the works is, as follows:—

	Sand.	Lime.	Soda.	Coal.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
(a) Rate at the source	5 13 6	19 11 0	135 0 0	5 0 0
(b) Railway freight	0 15 9	5 10 0	14 1 0	6 3 0
(c) Miscellaneous charges including labour	1 8 9	1 11 0	0 6 9	0 1 6
Total	8 6 0	27 0 0	149 7 9	11 4 6

The railway freight on coal, as has already been notified, will increase by 15 per cent. with effect from January 15th, 1932.

17. We do not hold any concession as regards the supply of raw materials.

18. The price of soda ash is Rs. 6-12 per cwt. f.o.r. Howrah which includes 20 per cent. duty, plus 5 per cent. surcharge. This material and other chemicals being purchased in Calcutta, the details asked for, cannot be supplied.

19. The Shakti Alkali Works, Dhrangadhra (Kathiawar), have recently started soda manufacturing on a very large scale and this has so far met the demand of one of the raw materials for glass making. The quality in all respects compares favourably with that of the imported stuff.

20. The materials used at present are considered suitable for the manufacture of the glasswares we are interested in. The analysis is as follows:—

Silica Sand.	LIME.		
	Per cent.	As received. Per cent.	Calculated on the non-vola- tile proportion of the sample. Per cent.
Silica Si O_2	97.55	3.85	4.95
Ferric Oxide $\text{Fe}_2 \text{O}_3$	0.37	0.32	0.41
Alumina $\text{Al}_2 \text{O}_3$	0.89	0.72	0.92
Titanium Dioxide Ti O_2	0.10	...	...
Managous Oxide mn O	0.05	...	...
Lime Ca O	0.03	69.40	89.22
Magnesia Mg O	0.02	2.82	3.62
Potash $\text{K}_2 \text{O}$	0.06	...	...
Soda $\text{Na}_2 \text{O}$	0.02	...	...
Phosphoric Anhydride $\text{P}_2 \text{O}_5$ . . . . .	...	0.03	0.04
Sulphuric Anhydride S. O_2 . . . . .	...	0.50	0.64
Carbon Dioxide C O_2 . . . . .	...	3.92	...
Moisture and combined water $\text{H}_2 \text{O}$	0.52	18.24	...

21. The foreign countries competing with India in the glasswares are also using the same materials.

22. The crucibles and pots are imported from Japan. Their prices f.o.r. works when purchased last time in July, 1931, and the present prices are, as follows:—

	Prices in July, 1931.	Present prices.
	Rs. Each.	Rs. Each.
800 lbs. pot	58	70
1,000 „	66	78
600 „	44	56

These prices will go up in proportion to the recent increase in the import duties. They will not, however, be steady in view of the too frequent fluctuations in the rate of Exchange.

The breakage in transit is about 10 per cent.

We have recently started making our own pots. They are both closed and open and are made of burnt and unburnt clay drawn from Jubbulpore in the Central Provinces. The preparation of the clay takes about 3 to 4 months. The pots, before they are used in the furnace, are kept drying under a certain temperature for about six months.

The method of their building is for all practical purposes, about the same as in England and other Continental countries.

The life of our open and closed pots is three months and five to six weeks, respectively. It is about the same as of those imported from Japan. Our open pots compare very well with those of the Continent of Europe and the United States of America, but our closed pots have so far proved inferior and shorter in life. We hope to improve them in the near future.

23. The materials for the furnaces are purchased at Jubbulpore. We do not know their composition, but they are quite satisfactory. We make our own furnaces, the life of which is 12 to 18 months.

24. The local labour, so far as the hand-gathering work is concerned, is quite efficient and does not need any foreign element to supervise it, but where the machines are concerned, the labour requires training and supervision, at least for sometime, from foreign experts.

25. At present we have engaged only one Englishman, one Austrian and one Japanese for the supervising work. In the past, we had as many as 20 foreigners to train the local labour and also to supervise them. The local co-operatives are now well qualified and we do not therefore need any more foreigners.

26. The Indian labour does decidedly improve in efficiency with the training given. In employing the foreigners, we provided sufficient facilities for training the local labour which has, by now, become competent enough to train as many more men as the expansion of the industry would warrant.

27. Manual labour has been replaced by introducing automatic machines. The hand-gathering or mouth-blowing process is resorted to only to meet small orders and where the articles cannot possibly be made by machines under the adverse circumstances.

28. The machines installed so far, are more than sufficient to meet the present requirements. The installation of any further plant is unwarranted by the present demand which is already much too small for the existing plant.

29. The high temperature and the high percentage of humidity in the air do not affect the efficiency of the Indian workmen who are naturally used to the climatic conditions.

30. The required figures for the year 1930-31 are as follows:—

(a) The total wages paid at the works are Rs. 83,131.

(b) The average rate of wages of different class of workmen is:—

Blower—Rs. 2 per day.

Fireman—As. 10 per day.

Ordinary coolies—As. 6 per day.

Packer—As. 6 per day.

Machineman—As. 6 to Rs. 2 a day.

Mould maker and casters—As. 6 to Rs. 4 a day.

Cutters and grinders—As. 4 to Re. 1 a day.

One machine operator (English)—Rs. 25 a day.

Two foreign experts—Rs. 7 a day.

(c) The average number of workmen employed during the year—853.

31. The labour engaged is local and therefore retire to their homes after the day's work. The outside labour (about 100 to 150) has been provided with quarters and also with recreation grounds in the factory premises. The local public school in the vicinity is sufficient to meet the present requirement of education. The necessary medical facilities have been provided.

32. Coal, firewood and oil are the principal fuels used and are available in abundance.

33. The coal is imported from Jharia (344 miles) and Ranigunj (390 miles) and firewood from Manikpore (60 miles).

The freight on coal is Rs. 6-3 and on firewood Rs. 3 per ton.

The Ranigunj Coal costs at the factory Rs. 11-4-6 and the Jharia Coal Rs. 9-9 per ton while the firewood costs Rs. 9 per ton.

The fuel oil is had from Calcutta (412 miles) and it costs Rs. 110 per ton.

34. Only in pot furnaces coal is directly used. In the tank furnaces it cannot directly be used. There the fuel used is in the form of gas, the waste heat being utilised for re-heating incoming air and gas.

35. The power used, is derived from both electricity and steam. The electricity is used, for the operations in the workshop for grinding and automatic machines, also for the foundry and lighting. The steam is used for generating electricity and also in the compressors and pumps.

36. The answer to this question is as follows:—

(a) Two tons of coal for one ton of melted glass.

(b) Three tons of coal for one ton of finished wares.

37. In our opinion, our works are large enough for economical working. To determine the smallest unit for economically working is impossible. This factor depends upon only the market conditions.

38. (a) The Miller Feeder is worked by electric trimmer and compressed air feeds the automatic machines which blow the wares. The blown wares are transferred to the lehr by manual labour.

(b) *Figure and ribbed glasses.*—The machine is a roller machine worked by electric power. The glass is poured by ladle into the machine and is run through the rollers coming out in sheets. The sheets are transferred automatically to the lehr.

The mouth-blowing process is a common process and does not require any detailed description.

39. In our calculations, our up-to-date machineries and the process of the manufacture on the lines adopted by us, are efficient enough. Our process of manufacture is quite identical with that of our competitors. We, however, need a little increased efficiency in the machine operators, which is not either difficult or impossible.

We can compete with the foreign manufacturers in the matter of quality and price, provided we are given the opportunity of reaching that stage. Our competitors had such an opportunity when their works were in infancy.

In our case, we would only say that our industry has been crippled down from its very inception by unfair competition.

The only improvement we need at present is that of the market conditions through protection or in other words prohibitive import duties on foreign articles.

40. During the last six years we have displaced to a large extent the hand-gathering system and introduced modern machines detailed above in answer to Question No. 4. We had to face a great difficulty in the beginning, but after long trials we have been able to see the result.

41. The method of manufacture in India is identical with the method of our competitors. The conditions do not materially differ.

42. The machineries and their main parts have been imported from United States of America, England and Germany. We make a number of parts required for repairs and replacements.

43. The Indian production of the principal kinds of glasswares are estimated at 60 to 70 lacs of rupees a year.

44. The principal markets of our manufactures are as follows. The distances from the Factory are noted against each:—

	Miles.		Miles.
Cawnpore	128	Jubbulpore	220
Lucknow	132	Nagpur	440
Agra	281	Patna	222
Saharanpur	454	Gaya	217
Benares	102	Calcutta	512
Delhi	431	Dacca	865
Amritsar	673	Bombay	841
Lahore	692	Ahmedabad	818
Ambala	554	Baroda	813
Quetta	1,297	Madras	1,301
Kashmir	1,227	Karachi	1,354

45. The railway freights applicable to glasswares are as follows:—

	CLASSIFICATIONS.		
	Bottles.	Illuminating wares.	Figure and ribbed glass.
E. I. Railway	1st class	5th class	4th class
G. I. P. Railway	2nd class	Ditto.	Ditto.
B., B. & C. I. Ry.	Ditto.	Ditto.	Ditto.
N. W. Railway	Ditto.	6th class.	Ditto.
B. N.-W. Railway	Ditto.	5th class.	Ditto.
B. N. Railway	Ditto.	Ditto.	Ditto.

These rates are much too heavy as compared with the rates prevailing in the countries of our competitors.

(b) The railway freight is charged on gross weight, i.e., including materials for packing. The required ratio is 1: 1½.

46. The comparative rates are as follows:

Selected up-country markets.	Railway freight from Naini per maund.	Selected up-country markets.	Railway freight from Naini per maund.
	Rs. A. P.		Rs. A. P.
1. Cawnpore	0 4 6	12. Dacca	1 8 10
2. Lucknow	0 7 7	13. Bombay	1 3 3
3. Agra	0 8 11	14. Ahmedabad	1 5 9
4. Saharanpur	0 15 3	15. Baroda	1 5 9
5. Benares	0 3 4	16. Madras	2 0 2
6. Delhi	0 13 0	17. Karachi	2 6 3
7. Jubbulpore	0 5 2	18. Amritsar	1 1 11
8. Nagpur	0 14 1	19. Lahore	1 2 7
9. Patna	0 7 6	20. Ambala	0 14 6
10. Gaya	0 7 1	21. Quetta	1 9 4
11.	1 0 9	22. Rawalpindi	1 8 11

NOTE.—An increase of 40 per cent. in the railway freight for stations Nos. 18 to 22 will come into effect from January, 1932.

47. The export of glass from India is only possible to such neighbouring countries as Afghanistan, Baluchistan, Persia and Burma. It is difficult to give an extent of the business at this stage. The chances for a good market in these foreign countries are ahead but not immediate nor under the present circumstances.

48. The competition from Japan is the keenest in India. The largest consumption of all the principal glasswares is in Bombay, Calcutta, Madras and Karachi and consequently the competition in such wares is very keenly felt in these places.

49. The required information is given in the statement enclosed.

50. The required information is given in the statement enclosed.

51. During the last war, the Government had purchased most of our manufactures, although at that time the quality was not so superior as it is at present. Since then, the quality has improved, but the Government have withdrawn from patronizing our manufactures and the business which we are at present getting from the Government departments amounts to about Rs. 200 per year.

We could reasonably expect the Government to translate into actions their orders for purchase of stores—much less to keep them sealed in the Statute Books.

52. Yes, the Indian manufacturer is at a disadvantage as compared with the foreign manufacturer for the following reasons:—

- (a) Expert advice to the Foreign manufacturer is always near at hand and also from his own countrymen, while the Indian manufacturer has to depend for this upon others who might, in some cases, be his direct or indirect competitors and further, any advice sought for, by correspondence, cannot be complete enough in the absence of personal discussion on the spot.
- (b) The foreign labour, having been used to machine work for a pretty long time, should certainly be more skilled than the Indian labour.
- (c) The Foreign manufacturer has all the raw materials supplied to him from places near-by, while the Indian manufacturer has to get these from different places covering in many cases a distance much too long meaning a comparatively high cost of railway freight.
- (d) The Foreign manufacturer has the custom duties regulated by the State, consistent with the requirements of the trade and where re-adjustments are necessary in consequence of the changing conditions of the markets, they are attended to at once. The case in India is quite different.
- (e) The Foreign manufacturer commands at least remunerative prices in the home market because of the suitability of the quality of the goods and thus he is always in a position to clear his stock in other markets even at a little lower rate should such a contingency arise.

53. For the reasons given in answer to Question No. 52 (f) the prices should be uneconomical.

	Rs.
54. Leases and land	15,000
Buildings	3,35,000
Plant, machinery, moulds, workshops	7,20,000
Stocks and raw materials	3,50,000
Outstanding balances	2,50,000

55. No depreciation has been set aside.

56. A factory having the same capacity as ours would at present cost 25 per cent. more, because of the higher rate of exchange, higher wages and the increased cost of land, etc. As a contractor owning brick kilns and having also agents qualified in the engineering line, the cost of buildings, etc., of our factory has been much too cheap as compared with that of others.

57 to 60. These questions do not arise in our case. We have neither created any reserve fund nor have made any profits.

61. The required information is given in the prescribed forms enclosed herewith.

62. The present breakage is 25 per cent. as against 35 per cent. which was five years ago.

(a) 15 per cent. in blowing, neck making and annealing.

(b) 5 per cent. rejection.

(c) 5 per cent. handling, stocking in warehouse and packing.

63. The figures for this question are not available. Due to the improvement in all the matters, the cost of production of all the wares has been greatly reduced.

64. The rates of depreciation allowed by the Income-tax authorities are—

Buildings	2½ per cent.
Machinery	5 per cent.
Furnaces	10 per cent.

These are not suitable. The conditions of a glass factory are quite different to those of other factories especially in connection with furnaces which require constant rebuilding and the consequent recurring charges.

65. The required information is as follows:—

(a) Average value of stocks of—

	Rs.
(i) Raw materials	50,000
(ii) Fuel	20,000
(iii) Finished goods	2,80,000

(b) The average outstandings in respect of goods sold are Rs. 2,50,000.

66. There is only one office in the factory which controls the management of the concern. The annual head office expenses amount to Rs. 8,218 and the agents commissions Rs. 38,000.

✓ All the conditions of the Fiscal Committee are fully satisfied so as to claim protection for the wares we are interested in.

67. (a) Yes, the glass industry does possess the natural advantages as have already been explained.

(b) It is unlikely for the industry to stand in the market, much less to develop without protection. In the past, many a concern had to close doors for want of protection and this fact is self-convincing as to the necessity for protection. The factory was started with mouth-blowing and in 1925-26 modern machines were imported and installed. As already explained, we had imported foreign experts to train the local labour to work the machines. We are still lacking in efficiency up to the standard required, but in course of time this will be reached.

We might state here that notwithstanding our efforts to withstand foreign competition, we have only been able to survive up till the present time but with a loss of as large a sum as Rs. 11,33,000. This fact must be further convincing as to the necessity for protection if this industry is to be allowed to survive in the country.

(c) With an opportunity being given by way of protection to this industry for healthy development, there is no question as to the increase in the required efficiency in the production and the consequent reduction in the cost and also in the percentage of breakage.

After the industry is raised to that stage, it can withstand all the outside competition.

It is now clear from the facts and figures already given that we have made out our case for protection sufficiently strong.

68. (a) The amount of protection should not be in any case less than 100 per cent.

(b) The protection may be by introduction of a prohibitory tariff or in the alternative, by allowing a bounty to our industry for the principal important markets, viz., Bombay, Calcutta, Madras and Karachi.

(c) The protection is required for all the varieties of our manufactures.

69. There is no industry in the country likely to suffer in consequence of the protection, but its development on a large scale, will add to the prosperity of the concerns which are supplying indigenous raw materials.

ANSWER TO QUESTION No. 49 (i).

50. Statement showing the current prices at which glassware is landed in India.

Kind of wares.	Prices.	Custom duty	Total.
		and landing charges 27 per cent.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.
12 oz. codd bottles	20 0 0	6 0 0	26 0 0
10 oz. codd bottles	19 0 0	6 0 0	25 0 0
8 oz. codd bottles	18 0 0	6 0 0	24 0 0
Crown cork bottles	10 12 9	4 8 6	15 5 3
Whisky and brandy bottles	10 12 9	2 14 0	13 10 9
Whisky and brandy $\frac{1}{2}$ pint	6 8 0	1 11 0	8 3 0
Tincture bottles	10 12 9	2 14 0	13 10 9
32 oz. winchester bottles	46 12 0	12 6 9	59 2 9
32 oz. wide mouth bottles	50 8 0	13 10 0	64 2 0
Medicinal and hair oil phials—			
4 oz.	3 8 8	0 13 0	4 5 8
6 oz.	4 10 2	1 3 0	5 13 2
8 oz.	6 1 10	1 10 0	7 11 10
Figured glass 100 sq. ft.	16 14 0	4 7 9	21 5 9

ANSWER TO QUESTION No. 49 (A) AND (B).

Prices realised (nett ex-works).

Kind of wares.	1927.	1928.	1929.	1930.	1931.	Average.
	Rs.	Rs.	Rs.	Rs. A.	Rs. A.	Rs. A. P.
12 oz. codd bottles	24	24	24 0	24 0	24 0	24 0 0
10 oz. codd bottles	23	23	23 0	23 0	23 0	23 0 0
8 oz. codd bottles	20	20	20 0	20 0	20 0	20 0 0
Crown cork bottles	13	12	12 0	12 0	12 0	12 3 0
Whisky and brandy bottles	14	14	14 0	13 0	13 0	13 6 0
Whisky and brandy $\frac{1}{2}$ pint	9	8	7 0	7 0	7 0	7 9 0
Tincture bottles	13	12	12 0	12 0	12 0	12 3 0
Medicinal and hair oil phials—						
4 oz.	4	4	4 0	4 0	4 0	4 0 0
6 oz.	5	5	5 0	5 0	5 0	5 0 0
8 oz.	6	6	6 0	6 0	6 0	6 0 0
Figured glass per sq. ft. . . . .	...	...	...	0 4	0 3	0 3 6

NOTE.—The custom duty up to February, 1930, was 15 per cent. and since then, it has been raised to 25 per cent.

FORM I.—Statement showing the total expenditure incurred at works on the production of glass during the past three years.

	1928-29.	1929-30.	1930-31.
	Rs.	Rs.	Rs.
I.—Raw materials—			
(a) Sand	8,255	7,293	2,289
(b) Soda ash	1,10,399	90,599	62,134
(c) Lime	3,935	4,494	2,150
(d) Crucibles and fire-bricks	14,994	2,682	1,870
(e) Refractory materials for furnaces	19,105	14,132	2,805
(f) Other materials	55,719	54,112	49,399
II.—Works and labour	1,30,739	87,529	83,131
III.—Power and fuel	88,226	72,064	52,835
IV.—Supervision and office	7,027	7,639	8,218
V.—Current repairs and maintenance	1,263	955	2,647
VI.—Packing	53,098	56,698	52,389
VII.—Selling expenses	15,558	46,871	45,241
VIII.—Miscellaneous, <i>e.g.</i> , stationery, rent, taxes, railway freight and other general charges	83,107	1,12,822	1,18,805
Machinery	49,224	98,224	5,056
Total	6,40,849	6,56,114	4,88,969

(2) Letter without date from the Allahabad Glass Works.

In continuation of our answers to the answers to your questionnaire submitted on December 31, 1931, we beg to say ours is a privately owned concern and it was started in the year 1913. The enterprise, although, it at present represents our investment of over 20 lakhs of rupees, has not held us successful in any wise, because of the fact that, in the beginning, we had to face a want of skilled labour. This, we could overcome but the keen competition from much advanced and backed by sufficient resources foreign manufactures which has been operating upon our prospects as a bar we have been unable to overcome.

The factory has at present the following plants:—

- (a) Four tank furnaces with varying capacities of 50, 65, 75 and 120 tons.
- (b) Four pot furnaces with a capacity of 600 to 1,600 lbs. a pot.
- (c) Four Oneill and one Lynch complete automatic machines.
- (d) Six Foster's semi-automatic machines.
- (e) Six Mellin's press and blow machines.
- (f) Three hand presses.
- (g) One figure glass machine.

The main products are bottles and phials of various sizes and designs, besides soda-water bottles, jars, ornamental figure glass, illuminating wares, tumblers, lamps and lantern globes and chimneys.

In quality and appearance, our products are equal to those of Germany and other continental countries and they are certainly superior and stronger than those of Japan.

A still higher efficiency in the quality is desirable but it can be achieved only in due course and under favourable circumstances.

In the past, we had engaged about 20 foreigners to train the local labour and also to supervise their work. The enterprise was much too costly but it has improved the standard of the efficiency of the local labour and this has, to great extent, helped to improve the quality of our products.

The skilled local labour is now sufficient and no more foreign element is required either to train more men or to do any supervising work.

The local labour is, however, not up to the mark for machine work, and their efficiency has to be raised to a certain extent. We have in our factory, one Englishman, one Austrian and one Japanese at present on the supervising staff and this complement is more than sufficient for the present requirement.

The annual outturn of the different manufactures in the factory, if worked to its full capacity, may be estimated as follows:—

Bottles 8 to 32 oz.	1,18,565 gross.
Medicinal phials 1 to 8 oz.	1,97,790 gross.
Lantern globes, chimneys and electric shades, etc.	19,665 gross.
Figure glass	4,275,000 to 5,700,000 sq. ft.

The demand at present is limited and the production has, therefore, to be kept to the most minimum scale. The figures of the last five years as given below will bear to the fact:—

	1927.	1928.	1929.	1930.	1931.
	Gross.	Gross.	Gross.	Gross.	Gross.
Bottles 8 to 32 oz.	8,266	10,628	17,702	17,564	17,202
Medicinal phials 1 to 8 oz.	15,228	16,665	36,990	40,606	33,808
Lantern and lamp globes and chimneys . . . . .	...	1,382	2,542	5,771	8,333
Figure glass	200,000 sq. ft.				

As would appear from the subjoined figures, the prices of the imported glass bottles and phials has been continuously going down with the increase in quantity.

Imports.	1925-26.	1926-27.	1927-28.	1928-29.	1929-30.
		Quantity in gross.			
Soda-water bottles	48,847	51,245	46,415	58,166	62,105
		Value in rupees.			
	13,49,869	14,22,111	12,09,214	13,58,238	15,44,987
		Quantity in gross.			
Bottles and phials	9,30,370	10,26,703	9,00,002	10,25,200	12,42,549
		Value in rupees.			
	50,11,563	53,70,982	45,02,497	49,71,209	42,51,188

Calculated on the basis of these figures the average prices per gross are continuously going down as the figures of the five years in the following will show:—

	1925-26.		1926-27.		1927-28.		1928-29.		1929-30.	
	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.
Soda-water bottles per gross	28	0 0	27	0 0	26	0 0	23	0 0	25	0 0
Bottles and phials per gross	5	6 0	5	3 9	5	0 0	4	9 0	3	6 9

With the present prices of raw materials and fuel, the cost of melting one maund of our glass is Rs. 4-2 as detailed below:—

	Rs. A. P.
Sand 40 seers	0 5 0
Soda 16 seers	2 6 6
Lime 8 seers	0 3 6
Coal 3 maunds	1 3 0
Total	4 2 0

The cost of manufacture, supervision, depreciation railway freight and other overhead charges all come to about 100 per cent. in the case of bottles, phials, globes, chimneys and jars; while in the case of soda-water bottles and figure glass, the total cost is higher by another 50 per cent. or whereabouts.

The following statement of our cost under several heads in relation to the principal production and the comparative prices of the same wares imported from Japan will, no doubt, be found interesting.

Kind of wares.	Cost of	Cost of	Total.	Current prices
	glass.	manufac- ture and other charges.		of the wares from Japan per gross.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
(a) Medicinal phials—				
(1) 4 oz.	2 1 0	2 1 0	4 2 0	4 4 6
(2) 6 oz.	2 9 0	2 9 0	5 2 0	5 10 8
(3) 8 oz.	3 10 0	3 10 0	7 4 0	7 6 4
(b) Bottles—				
(1) Whisky pint	7 10 0	7 10 0	15 4 0	13 2 9
(2) Whisky $\frac{1}{2}$ pint	5 3 6	5 3 6	10 7 0	7 8 0
(3) Tincture 16 oz.	7 10 0	7 10 0	15 4 0	13 2 9
(4) Codd bottles 6 oz.	7 10 0	14 14 0	22 8 0	...
(5) Codd bottles 10 oz.	10 5 0	18 13 0	29 2 0	...
(6) Crown cork	7 10 0	11 6 0	19 0 0	14 12 0
(c) Figure and ribbed glass 100 sq. ft.	12 8 0	16 11 0	29 3 0	20 9 3

In spite of the quality and appearance of our products being good enough, they do not fetch even the same prices which those of other countries and more particularly of Japan do. The reason for this is as stated above and this low price being unremunerative all along, has resulted into a heavy loss to us, *viz.*, Rs. 11,33,000.

India being an extensive country, the raw materials are scattered at distant places and to import them to the factory means a high cost of transportation. Similarly the finished goods have had to be sent to the different centres where there are markets for sale and upon these, a high rate of transportation, the trade has to bear.

We have no information about the railway rates of the other countries on similar produces but the conditions are, however, not the same.

River and other cheap inland transport does not exist in this country, while that in other countries, is always available and being very little costly, the manufacturers there are in a better position than what we are here.

Even the Railways in India are not under one system of management, each management has its own classification of goods and the rates therefore cannot be uniform. This is a great handicap to the prosperity of Commerce

and Industry of the country. If concession or reduction in the railway rates is applied for, it is, in the first instance, refused and if pressed upon continuously, it is granted, but after a long lapse of time. This system requires a change and that too, at an early date.

The foreign products command remunerative prices in their home markets and this fact should enable the manufacturers to dispose of their accumulated stocks in the Indian markets by lowering their prices.

The Indian Glass Industry, besides being all along in the grip of keen competition from the Foreigners, has now come to a still worse position; because of the continuous losses which it has sustained and which has almost cut down her resources.

The recent increase in the duty on the import of goods from Japan has not given us the relief required. The prices of the imported wares in this country are on a level with which we cannot compete. Our representative recently visited the different countries on the continent and made personal enquiries and it is from these enquiries that we arrive at the undoubted fact that their present prices are below the cost prices and therefore uneconomical.

Our cost of production is the most minimum and no further reduction is therefore possible.

The reduction in the existing rates of railway freight on coal, raw materials, firewood, oil, fuel and manufactured articles might improve matters and make the working a little more economical.

The foreign manufacturers have the special advantage of their own Tariff which is being regulated according to the exigencies of the Trade and further they have the advantage of a bounty which enables them to capture other markets.

The transport charges from the foreign ports to Bombay, Madras, Karachi and Calcutta—the principal markets of our manufactures—are no doubt cheaper than those which we have to bear upon our goods for taking them to those places.

The foreign manufacturers have always expert advice near at hand and also from their own country men, while the Indian manufacturers have to depend for such advice upon the foreigners and that too, by way of correspondence. Sometimes the advisers are our direct or indirect competitors but if this matter is discounted, the advice sought for by correspondence without the facility of personal discussion on the spot is of no use. The foreign labour is very efficient in machine operations and this fact counts to a certain extent to an advantage to the manufacturers.

The Indian Glass Industry is still in an infancy, we have not had the opportunity of learning the art. Our efforts came to be crippled from the very inception by competition from abroad and thus instead of a healthy growth, we have had a death knell and under these circumstances to stand in the trade, has become a matter quite impossible for us, much less to be able to compete with foreigners.

In no countries, industrial activities have advanced without protection or bounty or assistance in one way or other and it is this relief which we stand in need of at the present moment when the industry cannot survive longer under the present adverse circumstances.

We have ample raw materials and the sufficient supply of labour, also very large home markets and we are not lacking in intelligence, energy and enterprise.

With necessary accommodation to the industry being extended, we hope to be able to compete with foreign manufacturers and perhaps at a later date without any protection.

Having carefully considered the position of the trade our conclusion is that the amount of protection should not be less than 100 per cent. either by a prohibitory duty on foreign imports or in the alternative, by a bounty to our products for all the important markets in the country.

The protection is claimed particularly upon medicinal and hair oil phials—both narrow and wide mouth, bottles including codd, soda-water and crown cork bottles, illuminating wares and figure glass.

We might state in the conclusion that if the protection is not given, it is feared the industry will die an unnatural death in course of time with a dead loss to the owners.

(3) *Letter from the Allahabad Glass Works, dated the 14th January, 1932.*

With reference to the evidence put before you on the afternoon of the 13th instant, I beg to submit as follows:—

1. The evidence being on behalf of the importers, they are not so much benefited by our goods as by foreign-made goods, they are, in the interest of their own profit, naturally anything but in our favour, therefore their submissions should be considered by your goodself and your committee with that view.

2. As regards our quality in durability, shape, finish and content, we can with confidence say that we are prepared to satisfy any strict specification reasonably possible with any manufacturer in this line, and we are prepared to accept and execute any order for aerated bottles, soda-water bottles and codd bottles, with guarantee to the satisfaction of our patrons at even a bit cheaper rate than Rs. 34 as said to have been imported at the time of evidence. We further hold ourselves responsible to take back any bottles which may not pass their test and charge for only those passing their test.

3. As to 3 or 4 kinds of colour in one dozen, one having any idea about tank production cannot possibly imagine any truth in this assertion.

4. Just for your perusal and information we beg to enclose herewith the original letter* of appreciation of this particular kind of our goods from Messrs. Byron & Co., Calcutta. They must have their own interested reasons of contradicting themselves now. Your goodself will be able to judge about the validity of such conversed opinion. I shall be just pleased to send you many more letter, medals and certificates to the same effect from our office at Naini.

5. We further beg to repeat that as we have four Oneill and one Lynch complete automatic machines with Miller Feeders, and six Foster's semi-automatic machines, with up-to-date improvements we do not find any difficulties in fulfilling the obligations and undertakings stated above.

6. As to the suitability of our raw materials for the manufacture of this kind of bottles, it has been well recognized by experts and was highly spoken of by Mr. Hotkins at the time of the Tariff Board visit to our works. In fact the sand available in this locality is admirably suited for the manufacture of soda bottles and has been so certified by Dr. Turner the highest authority on the subject.

7. The gentleman appearing to give evidence repeatedly mentioned "I do not know exactly of Excise Department. I cannot definitely say Indian made bottles. Consumers do not object to the quality of Indian made bottles" yet they have been pleased to come forward to go against the genuine aspiration of Indian industries. Defect is that they feel that they cannot make so high profit with our goods and they have chosen to come forward to do anything but to rightly guide the Board.

In the light of what we have offered in the end of second paragraph, let them give us a chance to do business with them without resorting to their old methods of offering ridiculously low rates for Indian made goods.

8. We sincerely trust your goodself and your Board will be pleased to appreciate my claim for protection for also the sub-head of bottles as noted in the statistical reports as soda-water bottles as very essential and necessary recommendation for protection which surely go to the improve-

* Not printed.

ment and firm establishment of the industry in India and will certainly help to remove the shortcomings and defects of the industry.

(4) *Letter from the Allahabad Glass Works, Ltd.*

We beg to state that while our Manager was giving evidence before the Tariff Board on January 12, 1932, it was pointed out that certain figures given in our answers to the questionnaire and our letter in their continuation were not to the point and the Manager had promised to submit later on the revised figures. With reference to this we beg to give the revised figures in the enclosures and request that they may be read as such at the proper places in answers to the questionnaire and the letter referred to.

The difference in figures were due to the certain misinterpretation of the questions and the prescribed form of the statement.

In the statement of cost of production Form No. I certain items now included in the figures under "Works and Labour" were included under other heads and hence the figures under the former head in the revised statement have also been altered.

The figures under heads "Materials" and "Works and Labour" for the year 1928-29 in the statement are, as it will appear, not proportionate to the actual production. This is because during the year certain machines were under trial and also some fresh experiments were made which involved higher expenditure under these heads without giving an increased production of saleable articles.

Enclosure.

Answer to Question No. 5.

We manufacture the following varieties of glassware. The quantities manufactured during the last five years are as noted against each year:—

Kinds of wares.	1927.	1928.	1929.	1930.	1931.
	gross.	gross.	gross.	gross.	gross.
1. Bottles—					
Codd bottles	722	1,000	1,200	1,825	1,730
Crown cork bottles	310	690	800	1,000	940
Whisky and brandy bottles	1,169	66	1,565	1,435	1,390
Whisky and brandy $\frac{1}{2}$ pint	3,734	14,942	6,024	8,044	7,980
Tincture bottles	2,008	2,162	3,982	3,213	3,180
Chutney and pickle bottles . . . . .	...	...	61	290	281
Wide-mouthed stoppered and unstoppered bottles	107	470	200	513	509
Narrow mouth bottles	216	699	1,670	882	730
Screw top wide-mouth bottles and jars . . . . .	...	...	3,000	362	462
2. Medicinal and hair oil phials	15,228	16,665	36,990	40,605	33,303
Boot polish and inkpots	90	25	...	1,000	500
3. Lantern and lamp globes and chimneys . . . . .	...	1,382	2,542	5,771	7,783
4. Illuminating wares (table lamps, domes, shades, langham and other various designs) . . . . .	...	..	800	1,250	550
5. Ornamental figure and ribbed glass	200,000 sq. ft.				

Letter with reference to answers to questionnaire.

The demand at present is limited and the production has therefore, to be kept to the most minimum scale. The figures of the last five years as given below will bear to the fact:—

	1927.	1928.	1929.	1930.	1931.
Bottles 8 to 32 oz. . . .	8,266	10,628	17,702	17,564	17,202
Medicinal phials 1 to 8 oz.	15,228	16,665	36,990	40,606	33,808
Boot polish and inkpots . .	90	25	...	1,000	500
Lantern and lamp globes and chimneys . . . . .	...	1,382	2,542	5,771	7,783
Illuminating wares . . . . .	...	...	800	1,250	550
Figure glass	200,000 sq. ft.				

With the present prices of raw materials and fuel, the cost of melting one maund of our glass is Rs. 3-8 as detailed below:—

	Rs. A. P.
Sand 31 seers 4 chataks	0 4 0
Soda 12 seers 6 chataks	1 14 0
Lime 6 seers 3 chataks	0 3 0
Coal 3 maunds	1 3 0
Total	3 8 0

The cost of manufacture, supervision, depreciation, railway freight and other overhead charges all come to about 175 per cent. in the case of bottles, phials, globes, chimneys and jars; while in the case of soda-water bottles and figure glass, the total cost is higher by another 50 per cent. or whereabouts.

The following statement of our cost under several heads in relation to the principal production and the comparative prices of the same wares imported from Japan will, no doubt, be found interesting:—

Kind of wares.	Cost of glass.	Cost of manufacture and other charges.	Total.	Current prices of the wares from Japan per gross.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
(a) Medicinal phials—				
(1) 4 oz.	1 12 9	3 2 3	4 15 0	4 4 6
(2) 6 oz.	2 3 9	3 14 6	6 2 3	5 10 8
(3) 8 oz.	2 8 7	4 6 7	6 15 2	7 6 4
(b) Bottles—				
(1) Whisky pint	5 8 0	9 10 0	15 2 0	13 2 9
(2) Whisky $\frac{1}{2}$ pint	3 15 0	6 14 3	10 13 3	7 8 0
(3) Tincture 16 oz.	5 4 0	9 3 0	14 7 0	13 2 9
(4) Codd bottles 6 oz.	7 0 0	14 14 0	21 14 0	23 0 0
(5) Codd bottles 10 oz.	8 9 0	19 4 0	27 13 0	25 10 0
(6) Crown cork	5 8 0	9 10 0	15 2 0	14 12 0
(c) Figure and ribbed glass 100 sq. ft.	8 12 0	19 11 0	28 7 0	20 9 3

Answer to Question No. 12.

The production of one ton of glass requires the following:—

Sand	16 cwt.
Soda ash	6 cwt.
Lime	3 cwt.
Coal	3 tons.

Answer to Question No. 30 (a).

The total wages paid at the works are Rs. 1,05,590.

FORM I.—*Statement showing the total expenditure incurred at works on the production of glass during the past three years.*

	1923-29.	1929-30.	1930-31.
	Rs.	Rs.	Rs.
I. Raw materials—			
(a) Sand	11,977	12,398	11,634
(b) Soda ash	83,865	95,214	88,321
(c) Lime	7,462	8,678	8,144
(d) Crucibles and fire bricks	14,994	2,682	1,870
(e) Refractory materials for furnaces	19,105	14,132	2,805
(f) Broken	8,578	9,961	6,342
Other materials	7,623	8,390	5,420
II. Works and Labour	1,48,821	1,16,423	1,05,590
III. Coal	68,851	60,303	56,466
Power and fuel	10,592	12,060	11,293
IV. Supervision and office	7,027	7,639	8,218
V. Current repairs and main- tenance	9,432	13,742	14,743
VI. Packing	53,098	56,698	52,389
VII. Selling expenses	29,114	42,356	32,167
VIII. Railway freight	39,210	51,027	33,462
Miscellaneous <i>e.g.</i> , stationery and other general charges	18,468	29,206	33,070
Machinery	49,224	98,224	5,056
Total	<u>5,87,441</u>	<u>6,39,133</u>	<u>4,76,990</u>

THE ALLAHABAD GLASS WORKS, NAINI, ALLAHABAD.

B.—ORAL.

**Evidence of Rai Sahib BHAGWATI NARAYAN TANDON, recorded
at Bombay, on Tuesday, the 12th January, 1932.**

President.—Rai Sahib, you represent the Allahabad Glass Works?

Rai Sahib.—Yes.

President.—What is your position in the works?

Rai Sahib.—I am the Office Manager.

President.—The works are a proprietary concern?

Rai Sahib.—Yes.

President.—And therefore you don't issue balance sheets?

Rai Sahib.—No.

President.—I should like first to examine for a minute or two the statement of total expenditure that you show in Form I. The first item shown there is raw materials.

Rai Sahib.—Yes.

President.—And the cost of sand in 1930-31 is shown as Rs. 2,289.

Rai Sahib.—Yes. This is our purchase.

President.—I am coming to that. That is the sand which you purchased during the year 1930-31?

Rai Sahib.—Yes.

President.—It is not cost of the sand which was actually consumed?

Rai Sahib.—No. We must have got some balance left from last year.

President.—You had a certain amount of sand carried over from previous year and probably part of the purchase in 1930-31 was not used then and it is now held in stock. So this figure does not give any indication of the actual expenditure on the output of the year 1930-31.

Rai Sahib.—No.

President.—That seems to me to be perfectly clear, because Rs. 2,289 represents about 273 tons of sand.

Rai Sahib.—Yes.

President.—And the cost of soda ash that you show as Rs. 62,134 represents 414 tons of soda and obviously you cannot use 414 tons of soda to 273 tons of sand.

Rai Sahib.—Some must have been carried forward from last year.

President.—So far as the material costs in the statement are concerned, they are probably of very little use to us in determining your cost during the year?

Rai Sahib.—Yes.

President.—I suppose from the way in which your accounts are kept it would be practically impossible for you to get the figures relating to the actual expenditure of the year.

Rai Sahib.—Yes. Accounts cannot show that.

President.—May I take it that apart from raw materials, the expenditure under the other items represents the actual expenditure on the output of the year?

Rai Sahib.—All the expenditure is not given there such as depreciation, etc.

President.—That I understand. This is simply works expenditure, expenditure actually incurred at the works?

Rai Sahib.—Yes.

President.—Even there power and fuel doesn't seem to me to represent the actual expenditure.

Rai Sahib.—No, it doesn't.

President.—That would work out to about 17 tons of coal.

Rai Sahib.—We must have stocks.

President.—What about works labour?

Rai Sahib.—That too has again to be adjusted as in the case of raw materials.

President.—What is your own approximate estimate of the output of glass in tons during 1930-31?

Rai Sahib.—We have not calculated that.

President.—You give an item at the end of the statement machinery, Rs. 5,056 in 1930-31. Is that the amount spent in buying machinery during the year?

Rai Sahib.—Yes.

President.—So that, that would really be capital expenditure?

Rai Sahib.—Yes.

President.—And you include your railway freight to destination in the statement?

Rai Sahib.—Whether we charge from the customer or not we have to pay the railway freight at the destination.

President.—Your practice is to sell glass f.o.r. destination?

Rai Sahib.—Not always, only in some cases. In all cases we have to pay at Naini.

President.—You can sell your glass either f.o.r. Naini or f.o.r. destination.

Rai Sahib.—Yes.

President.—In the great bulk of your transactions how are the prices quoted?

Rai Sahib.—F.o.r. destination, but in some cases they are f.o.r. Naini.

President.—So that in all the cases in which the quotations are f.o.r. destination, the freight will be shown in your expenditure statement and that freight is included in item VIII?

Rai Sahib.—Yes.

President.—I notice that since 1928-29 the expenditure under miscellaneous including railway freight has increased from Rs. 83,000 to Rs. 1,18,000.

Rai Sahib.—Yes, the railway freight has increased in these years.

President.—I am inclined to think what it means is, in the first place you probably have sold more goods in 1930-31 f.o.r. destination than f.o.r. Naini compared with 1928-29.

Rai Sahib.—Yes.

President.—And also probably you are trying to go further afield in selling goods?

Rai Sahib.—Yes.

President.—If you look at page 2 of your new note, in regard to most of the articles except figured glass the output in 1931 is considerably larger than the output in 1928. In 1928 the production of bottles was 8,266 and in 1931, 17,202 gross.

Rai Sahib.—Till then we worked by mouth blowing system only.

President.—Your sales have increased probably in the same proportion?

Rai Sahib.—Yes.

President.—So that on a larger quantity of goods you had to bear railway freight?

Rai Sahib.—Yes. In 1928 we worked very little, because we had only then imported the machine and we were erecting them.

President.—There is one point which strikes me as rather interesting. Your output in 1930-31 is considerably greater than your output in 1928-29, but your expenditure has remained stationary.

Rai Sahib.—We have made some improvement. Formerly we were packing in boxes, and they were very heavy. We brought boxes from Calcutta and then we sent our goods to Bombay. Now we have shown to the merchants of Bombay that we cannot pack in boxes. So we give half the goods in baskets and half the goods in boxes. We now purchase old boxes at Allahabad. Formerly we brought new boxes from Calcutta.

President.—Can you tell me approximately the difference between the cost of a box bought from Calcutta and a box obtained locally in Allahabad?

Rai Sahib.—Rs. 1-8-0 a maund at Allahabad. Formerly the box which we brought from Calcutta cost us something like Rs. 2-8-0 to Rs. 3.

President.—Locally you can obtain it at Rs. 1-8-0?

Rai Sahib.—Something like As. 12 to Re. 1.

President.—Rs. 2-8-0 to Rs. 3 in Calcutta?

Rai Sahib.—Yes.

President.—It is a fairly big difference.

Rai Sahib.—Yes.

President.—And the boxes that you obtain locally, may I take it, are secondhand cases?

Rai Sahib.—Yes.

President.—Originally these new boxes used to be obtained from Calcutta?

Rai Sahib.—Yes.

President.—Now you pack them in second-hand boxes obtained locally?

Rai Sahib.—Yes.

President.—Are you sure of getting a sufficient quantity of second-hand boxes?

Rai Sahib.—Yes.

President.—In that connection I should like you to look at your answer to Question 12 where you give the quantities of each class of material used in the manufacture of glass. On what basis did you compile these figures? Do they actually represent your practice?

Rai Sahib.—That represents our practice.

President.—In that case loss in melting is pretty high?

Rai Sahib.—Yes. This is what our experts say they get.

President.—If you add up these 3 materials, sand, soda and lime, you get 32 cwts. out of which you get 20 cwts. of glass which represents a loss of 37 per cent.

Rai Sahib.—Yes.

President.—What is the reason for that?

Rai Sahib.—As I am not connected with the manufacturing side, I cannot say.

President.—Can you tell me as far as you know?

Rai Sahib.—As far as I know this is the practice.

President.—Do you use tank furnaces?

Rai Sahib.—Yes and pot furnaces also.

President.—The great bulk of your goods come from the tank furnace?

Rai Sahib.—Yes.

President.—That is considerably higher than any figure that we have seen so far.

Rai Sahib.—I cannot give any explanation at this moment, but later on we can consult our expert and let you know what they say.

President.—If you could think it over and let us have a short note, we should be glad.

Rai Sahib.—Yes.

President.—Is it possible for you to give us your full capacity, that is to say the full capacity of your plant as organised at present in terms of glass, that is to say not of finished glassware, but of melted glass. I notice in your second statement that you give us slightly different figures.

Rai Sahib.—The second statement is correct.

President.—Let us leave out for the time being your pot furnaces and take simply your tank furnaces.

Rai Sahib.—Yes.

President.—The four tank furnaces have a total capacity of 420 tons?

Rai Sahib.—Yes.

President.—That is the capacity of your furnaces?

Rai Sahib.—Yes. That is the dead capacity.

President.—In other words that is the quantity of material that your furnaces can hold?

Rai Sahib.—Yes.

President.—Supposing we take your loss of melting at the present figure of 37 per cent., then if you put into your furnaces 420 tons of materials, you would get out of that say about 260 tons of melted glass?

Rai Sahib.—Yes.

President.—You can work practically the whole year?

Rai Sahib.—Yes.

President.—Take it at 300 days. That is about 80,000 tons.

Rai Sahib.—Yes.

President.—So that in terms of melted glass your capacity taking simply the tank furnace is about 80,000 tons? Is that right, Mr. Hodkin?

Mr. Hodkin.—No. I think in answer to Question 4 when they state their capacity of the 4 tank furnaces as 55, 70, 120, 175, they mean the dead weight capacity of the tank so far as the glass content is concerned. The tanks will hold 420 tons of melted glass.

President.—You put the materials and begin melting. When the melted glass is formed, a little more space is available so that the capacity may be taken as the capacity of melted glass. Let us take it at 120,000 tons of melted glass.

Mr. Hodkin.—They won't do that. They won't take the full capacity of the tanks each working day.

President.—What allowance should we make for that?

Rai Sahib.—Sufficient glass can be supplied by the tank to which the machines are attached. From experience we have found that we can work two machines on one furnace.

President.—It is very difficult for me to get a clear idea of the position. You state it in terms of the quantity of each class of glassware. The only way I can visualise it is by getting the quantity of glass represented by the various classes of glassware.

Rai Sahib.—There are varieties of bottles and phials we make. We can say how so many gross a day of each variety we can make.

Mr. Hodkin.—I would suggest that you should take the actual capacity of the plant as being such as you would calculate from a method of working which would result in the emptying of the tanks once a fortnight.

Mr. Boag.—420 x 25.

Mr. Hodkin.—That would give the annual capacity of the tanks.

Mr. Boag.—That would be 10,500 tons.

President.—Is that quite correct?

Mr. Hodkin.—That is near the mark.

President.—10,500 tons of glass in a year.

Rai Sahib.—I think that the tank capacity is such as to supply sufficient glass for the machines attached to it. We know how many bottles of different sizes a machine can turn out.

President.—Supposing I put it to you that your total capacity in terms of glass is somewhere about 10,000 tons, speaking approximately, do you consider that a correct representation of the position? Are you quite unable to work out the relation between the weight of the glass and the total output of each class of glassware?

Rai Sahib.—We can, but it will only be an estimate. What kind of bottle are we to take? There are, as you know, hundreds of kinds of bottles.

President.—Let me try and approach it from another point of view. If you look at page 2 of your new note, you will find that you give the actual outturn if worked to full capacity. Let us take those figures. Are you in a position to give me with regard to bottles of 8 to 32 oz. what the average weight of a gross of bottles of that kind is?

Mr. Varshnei.—I think that your purpose will be served if you take the 12 oz. bottle.

President.—What is the weight of a gross of 12 oz. bottles?

Rai Sahib.—1 maund 2 seers.

President.—That is about 85 lbs.

Rai Sahib.—Yes.

President.—When you said that a 12 oz. bottle might be taken as a representative one, did you mean that it might be taken as representative of the whole class of bottles including phials?

Mr. Varshnei.—Under the first heading you have bottles (8 to 32 oz.). In gross, it is 1,18,000. Just to make a calculation if you take the 12 oz. bottle and calculate the weight for so many gross, you will get 4,000 tons.

President.—It is nearer 5,000 tons than 4,000 tons.

Mr. Varshnei.—You are correct.

President.—What about phials? What is the average weight of a phial? Can we take the 4 oz. phial as representative of phials?

Rai Sahib.—A gross of 4 oz. phials will weigh about 20 seers.

President.—Then, for phials it will be 3,500 tons. Is that correct?

Rai Sahib.—Yes.

President.—Taking your globes and chimneys, what kind of globe would you take as typical?

Rai Sahib.—Dietz lantern globes.

President.—Would the Junior Dietz be typical?

Rai Sahib.—Yes.

President.—Supposing I took it at 40 gross to a ton, would that be correct?

Rai Sahib.—Yes.

President.—That will be 500 tons.

Rai Sahib.—Yes.

President.—What about your figured glass?

Rai Sahib.—Do you mean how many square feet of figured glass would make a ton?

President.—Yes.

Rai Sahib.—I shall give you that figure later on. I have not got it here.

Mr. Varshnei.—The thickness of their figured glass is 30 oz. to a square foot.

President.—Let us take it on that basis. Shall we take it at 2 lbs. to a square foot?

Mr. Varshnei.—Yes.

President.—That will be 4,500 tons.

Mr. Varshnei.—Yes.

President.—Now the bottles, phials and figured glass are made out of glass melted in your tank furnace?

Rai Sahib.—Yes.

President.—And the globes and chimneys are made out of glass melted in pot furnaces?

Rai Sahib.—Yes.

President.—Therefore the total capacity of your tank furnace is 12,500 tons.

Rai Sahib.—Yes.

President.—If you add $\frac{1}{4}$ th to that for breakages and wastage after the melting stage, about 15,000 tons of glass would represent the capacity of the tank furnaces as you have worked it out?

Rai Sahib.—Yes.

President.—That is of course a very approximate calculation.

Rai Sahib.—Yes.

President.—In terms of melted glass, it would come to about 15,000 tons. You are not in a position even to state approximately what your output has been during the past three years in weight?

Rai Sahib.—You mean the output regarding bottles?

President.—I want to know the output of the whole plant.

Rai Sahib.—We have never worked the whole plant. We cannot sell even what we turn out.

President.—You have given us in the new statement on page 100 current prices of glassware imported from Japan. Is it your suggestion that your main competition in regard to all these articles that you show in that statement is from Japan?

Rai Sahib.—Yes, for bottles and phials.

President.—What about figured glass?

Rai Sahib.—These are rates we have obtained from the Calcutta market.

President.—Is the competition in regard to that mainly from Belgium?

Rai Sahib.—I think it is from Belgium and Czecho-Slovakia.

President.—Assuming for the time being that these prices that you show in the statement are current prices of Japanese imported goods, according to the present conditions in the market by how much lower than these prices are likely to be the prices realised by you in competition? If a Japanese imported article is offered in the market for Rs. 4-4-6 per gross, ordinarily from your experience what is the price that you think the Indian consumer is likely to pay for the same class of goods made in your factory?

Rai Sahib.—In the case of phials, it will be 8 annas a gross less, in the case of soda bottles, Rs. 2 to Rs. 3 per gross less and in the case of Whisky pints Rs. 2 per gross less.

President.—Of course it is impossible for you to make any statement about figured glass because you have not made any in recent years?

Rai Sahib.—That is so.

President.—The plant has been idle for two years?

Rai Sahib.—Yes.

President.—Your own explanation of this difference in price between your articles and imported articles is that there is a considerable amount of prejudice in the market against Indian made goods.

Rai Sahib.—There is some prejudice in the country which cannot be denied against Indian made goods. That is responsible to a certain extent

for the lower price that we are realising. At the same time I must say that the prejudice is gradually disappearing.

President.—Is there any difference in quality between your goods and imported goods?

Rai Sahib.—As regards phials I can say that our phials are better than the Japanese. Ours are heavier and stronger.

President.—Therefore you think that the prejudice is bound to disappear in course of time?

Rai Sahib.—Yes.

President.—What about soda bottles?

Rai Sahib.—The same is the case with it too. Formerly our breakages were very heavy. But now we test each and every bottle before we allow the bottles to go on the market. So, the bottles that go on the market now are much better than before.

President.—What about whisky bottles?

Rai Sahib.—Our bottles differ in capacity from $\frac{1}{2}$ oz. to $\frac{3}{4}$ oz.

President.—Is that variation?

Rai Sahib.—Yes.

President.—What about imported bottles?

Rai Sahib.—They also vary but not to the same extent as our bottles. Our representative who had been to England says that we can also achieve the same result very soon. Our method of making bottles is the same as in England and in other places. Only a little more supervision is required and the temperature of the tank has to be regulated better. That is what he says.

President.—Have you had any specific complaints from the users of these excise bottles?

Rai Sahib.—Really speaking we never supplied them. We cannot supply bottles of uniform capacity. Even in Germany they cannot supply bottles of the same capacity. When they receive orders they stipulate that a certain percentage will vary.

President.—Is there any difficulty apart from the difficulty of securing uniform size, uniform capacity?

Rai Sahib.—No. There is no variation in size but in capacity only.

President.—In regard to the actual quality of bottles, has there been any difficulty?

Rai Sahib.—Not at all. The Excise people want bottles made to the exact capacity, but, 25 per cent. of our bottles vary in capacity. It is a necessary condition that the bottles supplied to the Excise Department should be embossed with their mark and such bottles which are not of the required capacity and cannot be supplied to the Department will not seek any other market on account of their being embossed. It will thus be a loss of 25 per cent. So, we are losers. If they leave out the condition of embossing, we can supply them very easily.

President.—In upcountry markets, there is bound to be a fairly large supply of second hand bottles?

Rai Sahib.—That is also our difficulty. Second-hand soda bottles are also coming from England for the last two years.

President.—Is it likely do you think that the Indian manufacturers' prices might be pushed down to some extent as the result of the supply of second-hand bottles?

Rai Sahib.—The thing is this. As soon as protection is given or a protective duty is put on, we shall be able to sell our bottles. Now there is no protection and they send their second-hand bottles also to India.

President.—You are familiar, are you not, with the actual conditions in upcountry markets near Allahabad?

Rai Sahib.—I think I am.

President.—Can you think for a moment of one of these particular markets and tell me the approximate proportion of second-hand bottles that come into the market? Is it possible at all to make any suggestion?

Rai Sahib.—I don't think so.

President.—What generally is the price at which second-hand bottles are sold as compared with fresh bottles?

Rai Sahib.—Second-hand beer bottles are sold at 6 annas a dozen in Bombay.

President.—That is about Rs. 4-8-0 a gross?

Rai Sahib.—Yes.

President.—What would be the price of new bottles?

Rai Sahib.—About Rs. 18 a gross.

President.—As far as excise purposes are concerned can I use second hand bottles for bottling spirits?

Rai Sahib.—They don't allow that.

President.—The only stipulation they lay down is in regard to the capacity of the bottles?

Rai Sahib.—Yes. Both this and embossing. Lately they have made one more stipulation, namely, that each bottle must have a mark on the neck. The spirit in the bottle must be up to that mark on the bottle.

President.—How is the embossing done?

Rai Sahib.—It is done in the mould and then the impression comes on the bottle when blown.

President.—It won't do if I simply put a paper label on it?

Rai Sahib.—No.

President.—It is quite out of the question for sellers of spirits to use second-hand bottles?

Rai Sahib.—They can't because of the embossing.

President.—What is the use to which generally second-hand bottles are put?

Rai Sahib.—Small chemists and others use them.

President.—I can buy my kerosine oil in the bazar in these bottles?

Rai Sahib.—Yes.

President.—So that the use of second-hand bottles would be rather restricted?

Rai Sahib.—Yes.

President.—And therefore the danger from second-hand bottles is not so great?

Rai Sahib.—No.

President.—In determining the price that you realise it may be dismissed as a negligible factor?

Rai Sahib.—Yes.

President.—There is rather an important question. You manufacture various kinds of glassware and I should like to get some idea of the difference in the costs of manufacturing these different classes of glassware. The particular case that I put to Mr. Varshnei yesterday was the difference in the cost between phials and lantern globes and the point was made that the main difference in cost would arise under three heads—cost of the raw materials, because there are certain materials that you have got to use for chimneys that you don't use for bottles, there are greater breakages in the case of chimneys, and there is possibly better and more expensive packing to be done in the case of chimneys. You generally agree with that, don't you?

Rai Sahib.—Yes.

President.—Taking these factors into consideration approximately what do you think is likely to be the difference in cost between phials and globes that represent the same weight of glass? Assuming you have a class of globes that yield about 40 gross to a ton and phials that yield also 40 gross to a ton; taking these two classes of articles, and making allowance for difference in costs under these various items what approximately do you think is likely to be the total difference in the cost? Supposing the total cost of manufacturing a gross of phials is Rs. 5 what do you think is likely to be the cost of manufacturing globes having much the same weight? Is it possible for you to make a statement?

Rai Sahib.—No.

President.—Supposing I said it would somewhere about Rs. 7 or Rs. 8? Have you any data at all?

Rai Sahib.—I can't make any statement.

President.—I suppose the price of imported phials is considerably lower than the price of globes, is it not?

Rai Sahib.—In what way?

President.—Take your statement. If you take your 4 oz. phials, the current price of imported phials is Rs. 4-4-6. I may tell you what my own impression is. If you take lantern globes having approximately the same weight that is to say the same number of units yielded by the same weight of glass, the price of imported globes would be somewhere about Rs. 15 to Rs. 16?

Rai Sahib.—There would be a big difference. 4 oz. phials are imported at Rs. 4 and Dietz globes at Rs. 18 per gross. There is a very big difference.

President.—Do you think the difference in the cost is likely to be so great as the difference in the import price?

Rai Sahib.—Yes. You are comparing 4 oz. phials with chimneys which are bigger.

President.—Take a 6 oz. phial. What I want you to explain is this. If a globe weighs 6 oz. and a phial also weighs 6 oz. the price in the market of the globe is about four times the price of the phial. Take a phial that weighs 6 oz., that is, a phial which yields about 40 gross a ton and take a globe which has much the same weight.

Rai Sahib.—The difference will be not more than 50 per cent. in the cost.

President.—But the difference in the price is about 400 per cent.; how do you account for that? If it cost me about Rs. 5 to make phials I should be able to make globes at about Rs. 8 per gross which is somewhere about 50 per cent. But the difference in the import price is about 400 per cent. What precisely is the reason for this?

Rai Sahib.—I can't say.

President.—Can you throw any light on it, Mr. Varshnei?

Mr. Varshnei.—I think 12 oz. phials will compare favourably with Dietz lantern globes. A 12 oz. phial will weigh about 7 oz. and so is the case with Dietz globes. The price of 12 oz. phials is Rs. 12 per gross while the price of Dietz globes is Rs. 18 per gross.

President.—On that basis the difference in the price corresponds approximately to the difference in weight?

Mr. Varshnei.—Yes.

President.—Supposing this Board after due consideration decides to grant protection to bottles and phials and lantern globes, then the same rate of duty would suffice if it is fixed *ad valorem*?

Rai Sahib.—Yes.

President.—Supposing, for example, we determined the cost of some particular class of blown ware, let us say phials, and having worked out

the cost compared with the price we get a certain duty, let us say, 50 per cent. and in the circumstances of the industry applied it to every glass or blown ware it will be a legitimate assumption, won't it? It is unnecessary for the purpose of tariff determination to go in detail into the class of each blown ware?

Mr. Varshnei.—That is so.

Mr. Rahimtoola.—I would like to understand a little more in detail your answers in connection with second hand bottles. You gave us to understand that it is impossible for the Excise authorities to pass those bottles because there is no embossing done on the second hand bottles. Suppose one of the glass manufacturers takes a mould and does the embossing, will that obviate the difficulty? You just now told us that the embossing is done in a mould: if somebody buys second hand bottles, makes these into glass and then embosses it, it will be cheaper than Rs. 18 at which new bottles are sold, would it not? You told us that bottles duly embossed are sold at that price.

Rai Sahib.—That will be like broken glass which can always be melted. But those bottles will be weaker because if we put more of the broken glass and less raw material in the tank, the glass manufactured will be weaker.

Mr. Rahimtoola.—Have you ever corresponded with the Excise authorities regarding the orders for these kinds of bottles?

Rai Sahib.—Yes. The Excise Commissioner came to our factory twice and we discussed the matter but he insisted upon the exact capacity of the bottle being shown on it.

Mr. Rahimtoola.—The main objection raised by the Excise authorities to the use of Indian bottles was that they were not of the exact capacity?

Rai Sahib.—That is one; then they want the embossing to be done on the bottles. We can always supply the exact capacity if they do not insist on embossing. If we emboss the bottles then there will be a wastage of 25 per cent. of the bottles as not being of the exact capacity on account of variation in the weight. This 25 per cent. will have to be thrown away because they will be embossed and so useless to outside customers. The result will be that our prices will be higher.

Mr. Rahimtoola.—The question of price will come later. I want to know, apart from the question of price, is it possible for the Indian factories to supply these bottles?

Rai Sahib.—Yes, it is quite possible.

Mr. Rahimtoola.—There is not the slightest difficulty for Indian factories to supply these bottles according to specification?

Rai Sahib.—None at all.

Mr. Rahimtoola.—In your answer to Question 2 you say that the superior management is entirely Indian. I don't quite understand that when you go on to say that you have got three men to supervise who are non-Indians.

Rai Sahib.—We have only one non-Indian who supervises the machines. He is the foreman.

Mr. Rahimtoola.—One is foreman. What position does the other man hold?

Rai Sahib.—The Austrian is a blower and the Japanese man is also a foreman.

Mr. Rahimtoola.—I want you to explain to me a little more fully. What exactly do you mean when you say in your new note that the efficiency in quality can only be achieved under favourable circumstances. Do you mean by the grant of protection?

Rai Sahib.—Yes.

Mr. Rahimtoola.—There is no other consideration?

Rai Sahib.—No.

Mr. Rahimtoola.—On page 3 you say calculated on the basis of these figures the average prices per gross are continuously going down as the figures of the five years in the following will show:—

	1928-29	1929-30
	Rs.	Rs.
Soda-water bottles per gross	23	25

Rai Sahib.—I think mostly Japanese goods might have come in that year.

Mr. Rahimtoola.—Why should there be an increase of Rs. 2 when the prices are continually going down?

Rai Sahib.—I think the import duty was increased.

Mr. Boag.—Not in 1929.

Rai Sahib.—I cannot explain.

Mr. Rahimtoola.—On page 4 of the new note you have said that the cost of manufacture is 100 per cent. over and above the melting stage of raw materials. Will you give me the details as to how you have calculated this?

Rai Sahib.—The details of 100 per cent. are as follows:—

	Per cent.
Blowing power and fuel	30
Packing, sorting and stacking	30
Breakage	20
Electricity, pots and moulds	20
	<hr/> 100

After that we have to spend the following:—

	Per cent.
Depreciation	15
Commission to merchants	22½
Railway freight	45
Bad debts	6
	<hr/> 88
In round figures	<hr/> 90

Mr. Rahimtoola.—You say here while in the case of soda-water bottles and figured glass, the total cost is higher by another 50 per cent.

Rai Sahib.—Soda-water bottles we have to test. In each and every bottle we have to put in rubber rings and marbles.

Mr. Rahimtoola.—That is the cost which is added?

Rai Sahib.—Yes.

Mr. Rahimtoola.—You state here that you have not been able to make figured glass since 1927?

Rai Sahib.—That is so.

Mr. Rahimtoola.—That means I suppose you have got figured glass on hand at present?

Rai Sahib.—Yes.

Mr. Rahimtoola.—How much stock is left out of the 2 lakhs square feet that you manufactured in 1927?

Rai Sahib.—The stock must be something like $\frac{1}{10}$ th of the whole. During 3 or 4 years we could only sell $\frac{2}{3}$ ths of the quantity made.

Mr. Rahimtoola.—You have $\frac{1}{10}$ th of the balance. What is the difficulty in disposing it of?

Rai Sahib.—Our prices are high.

Mr. Rahimtoola.—Your cost of manufacture is higher?

Rai Sahib.—Yes. The railway freight is also high.

Mr. Rahimtoola.—Here you have stated that the current price of the wares from Japan is Rs. 20-9-3 as against yours Rs. 29-3-0.

Rai Sahib.—Rs. 29-3-0 is our cost price.

Mr. Rahimtoola.—On page 6 you are comparing the state of things in India as against foreign countries and you state the difficulty of having expert knowledge near at hand. You are in favour of maintaining an expert by the Government of India?

Rai Sahib.—As regards machine, we think we require some expert practical knowledge—I mean practical knowledge.

Mr. Rahimtoola.—You would like an expert in glass technology or a glass expert should be maintained here at the expense of the Government of India for such advice as the Indian factories might like to have. Is that the proposal which is contained in this paragraph. Your complaint is that you are not getting satisfaction because there is constant correspondence and you want personal conversation?

Rai Sahib.—If really an all-round man can be got, he may be useful to us.

Mr. Rahimtoola.—I want to know what is exactly in your mind. Is it your intention that Government should maintain one expert who could be useful for the industry?

Rai Sahib.—That was not our intention. In this connection I want to impress upon you the difficulty caused to us by the lack of expert knowledge in the country. Whenever we meet with any technical difficulty, we have to correspond with experts in England and other Continental countries and take their advice. That naturally takes a very long time.

Mr. Rahimtoola.—That is one of the grievances of yours against the foreign manufacturers, as I understand it. I want to know what remedy you would suggest. Have you thought about that?

Rai Sahib.—It will be useful if really an all-round man is available.

Mr. Rahimtoola.—If an expert is appointed by the Government of India, will that obviate your difficulty?

Rai Sahib.—That depends upon the man.

Mr. Rahimtoola.—You are going into the details. I am talking of the appointment of a man. You are discussing the kind of man you want before you decide in favour of a man. My point is whether you are in favour of a man, then it would be time to find out what method the Government of India should adopt in order to get the really right sort of man you want.

Rai Sahib.—It would help us if the Government appoint the right sort of man.

President.—If you don't get a good man it is money thrown away.

Rai Sahib.—Quite.

Mr. Rahimtoola.—That is understood. That is not confined to your own industry.

Rai Sahib.—Glass industry requires expert knowledge in all departments. One expert can't do for all the departments.

Mr. Rahimtoola.—On page 3 you tell us that you are drawing sand from Lohagra. Will you tell me whether you are satisfied with the quality?

Rai Sahib.—For our bottles it is good.

Mr. Rahimtoola.—You are also making chimneys and globes?

Rai Sahib.—For chimneys we use this sand after washing it at our place.

Mr. Rahimtoola.—That serves your purpose?

Rai Sahib.—Yes.

Mr. Rahimtoola.—You have had no difficulty regarding this sand?

Rai Sahib.—No. Bargarh and Lohagra are very near to each other and both of them are near to us.

Mr. Rahimtoola.—You are not using it from the other place?

Rai Sahib.—Sometimes we use, but I have not put it here.

Mr. Rahimtoola.—So you are using sand obtained from both places?

Rai Sahib.—Yes. That would make no difference to us.

Mr. Rahimtoola.—Later on in answer to Question 6 (c) you state here that your factory is in the centre of the country and the more important markets come to be more or less at an equidistance. Do you still find difficulty in selling your manufactured goods?

Rai Sahib.—We have got a very large stock and we cannot sell.

Mr. Rahimtoola.—In spite of the fact that you are centrally situated?

Rai Sahib.—Yes on account of our prices being higher. Whatever we sell, we sell at a loss.

Mr. Rahimtoola.—On page 4, you say you have got your own colliery?

Rai Sahib.—Yes.

Mr. Rahimtoola.—Also quarries or sand rock?

Rai Sahib.—Yes.

President.—Where is your colliery?

Rai Sahib.—In Jharia.

President.—Is the sand quarry your own property?

Rai Sahib.—Not our property, but it has been leased to us.

Mr. Rahimtoola.—On page 14 in answer to Question 51, you are complaining about the Government purchases. Can you tell me the reason why they have ceased to purchase?

Rai Sahib.—I saw once at Delhi the Officer of the Store Purchase Department. He said that the tincture bottles sometimes are very heavy and sometimes light. They vary in capacity. On this pretence they have refused.

Mr. Rahimtoola.—Were you not able to satisfy them on that score?

Rai Sahib.—We sent them some samples and they rejected it.

Mr. Rahimtoola.—You say your quality became better and in spite of that they didn't take?

Rai Sahib.—Yes. During the war time our glass was bad. The mouth of the bottles was bad and still they were purchasing, but now when we have made improvements and when we have got machines, they do not take it. It is only the Inspector General of Jails who purchases chimneys from us.

Mr. Rahimtoola.—Is not there a kind of test which your bottles go through to satisfy the authorities?

Rai Sahib.—Our bottles are used by chemists like Alembic Chemical Works for filling tinctures and they are strong enough for that purpose.

Mr. Rahimtoola.—As far as I can understand from you, Government rejected it on the ground that they are not about equal to the sample which they may have submitted to you. The bottles that you turned out were according to them inferior.

Rai Sahib.—In this respect only that they were a bit heavy and the capacity was not exact.

Mr. Rahimtoola.—Could you not remedy that defect?

Rai Sahib.—We can't remedy the defect in all the bottles. In the case of whisky bottles, half pint, there is a variation of $\frac{1}{4}$ to $\frac{3}{4}$ oz.

Mr. Rahimtoola.—You also said that that variation exists in foreign bottles?

Rai Sahib.—It does, but it is less than ours.

Mr. Rahimtoola.—Supposing you do everything by automatic machines?

Rai Sahib.—The variation takes place there too. Our representative has come with experience and he says that a little more regulation of temperature will remedy this defect.

Mr. Rahimtoola.—You have not tried that?

Rai Sahib.—No. All our works are closed at present on account of heavy stocks.

Mr. Rahimtoola.—As regards Form I, you have expressed your difficulty in supplying us with exact figures. I personally do not understand why that difficulty should exist because even if the accounts are kept in Indian style, it should be easy for you to find out how much quantity is left.

Rai Sahib.—We can give that from our records. What I understood from this was that you wanted the expenditure for the year as in our books.

Mr. Rahimtoola.—I quite understand what you have put in. But I think that it would be easy for you to give us more accurate figures?

Rai Sahib.—Yes.

Mr. Rahimtoola.—If you could give us more accurate figures, it would be useful.

Rai Sahib.—I shall send you the figures later. We also take stock at the end of the year, if not for our own purposes, at least for the income-tax purposes.

Mr. Rahimtoola.—I hope you will be able to supply us more accurate figures.

Rai Sahib.—Yes.

President.—That would be a statement of your actual expenditure based on materials consumed during the year and not on materials purchased?

Rai Sahib.—Yes.

Mr. Rahimtoola.—As regards Form I you have supplied us the total expenditure but you have not supplied us the total expenditure on the production of glass. That is where the difficulty comes. The total expenditure given for the year is not on the production of glass for that year. The production of glass is the number of tons you turn out and the total expenditure is not in that.

Rai Sahib.—I misunderstood it.

President.—Suppose for example you were trying to find your actual expenditure on sand consumed during 1930-31 let me see what you would do. You would take your stock of sand at the end of 1929-30 and include your purchases during the year 1930-31 and deduct your stock at the end of 1930-31. That would give you your actual consumption?

Rai Sahib.—Yes.

President.—That you would do with regard to each of these materials?

Rai Sahib.—Yes.

President.—That is to say, your previous stock *plus* your purchases *minus* stock outstanding at the end of the year.

Rai Sahib.—You want figures for sand, soda and lime.

President.—For all the materials.

Rai Sahib.—Yes.

President.—I thought you were rather doubtful whether your works labour referred to actual expenditure although I was not able to follow why your actual expenditure on labour for a particular year should be other than on the production of glass in that year?

Rai Sahib.—Sometimes it so happens that the pay for March is put down in the month of April. Sometimes we give the March pay in February.

President.—In that case, if you take 1929-30, the amount shewn as disbursed in March, 1930, would be the wages earned in February, is that your point?

Rai Sahib.—Yes.

President.—I don't think that will cause any practical difficulty.

Rai Sahib.—No, moreover, we have worked for a lesser number of days.

Mr. Rahimtoola.—You take the actual number of men employed.

Rai Sahib.—The difficulty is this. Sometimes we work for 6 months and sometimes 9 months in a year.

President.—As far as works labour is concerned, if you have figures showing the actual expenditure during the year 1930-31 on labour disbursed as wages, that would be good enough for our purpose.

Rai Sahib.—I will send it.

Mr. Rahimtoola.—I want you, in the light of the discussion that has taken place, to send us a revised statement as in Form I.

Rai Sahib.—Yes.

President.—With regard to coal also you would do precisely what you are going to do with regard to the other materials?

Rai Sahib.—Yes.

President.—Could you take out the railway freight from item 8?

Rai Sahib.—Yes.

President.—Then you are going to take out the machinery item?

Rai Sahib.—Yes.

Mr. Boag.—I should like to ask you one or two questions about your bottle machines. You say you have got 5 machines?

Rai Sahib.—Yes, we have 5 machines altogether.

Mr. Boag.—Of these 5, you have three working on one furnace?

Rai Sahib.—Three are attached to one furnace and two are idle.

Mr. Boag.—Two are now idle?

Rai Sahib.—Yes.

Mr. Boag.—When they work, they work one on each furnace?

Rai Sahib.—They are not working.

Mr. Boag.—Have they ever worked?

Rai Sahib.—Not altogether.

Mr. Boag.—How many have you working at one time?

Rai Sahib.—Two.

Mr. Boag.—Can you make bottles of every shape and size on each of these machines?

Rai Sahib.—What do you mean by every shape and size? Up to 32 oz. we can make.

Mr. Boag.—On one machine can you make all?

Rai Sahib.—There are different machines for different sizes. Two machines are for making bottles of 1 to 8 oz. and three machines for bottles of 8 to 32 oz.

Mr. Boag.—When did you buy these machines?

Rai Sahib.—In 1925.

Mr. Boag.—All of them in 1925?

Rai Sahib.—First of all we got one machine only and after that two machines. Then we purchased two more.

Mr. Boag.—When did you get the first?

Rai Sahib.—In 1925.

Mr. Boag.—Then you got two?

Rai Sahib.—Yes, in the same year.

Mr. Boag.—The others?

Rai Sahib.—The year before last. These we purchased from Calcutta.

Mr. Boag.—Have these two been used in the factory?

Rai Sahib.—They were fixed up and worked for a month or two. Afterwards we did not work them and so they are now lying idle.

Mr. Boag.—You have given us the analyses of sand and lime that you use?

Rai Sahib.—Yes.

Mr. Boag.—Who made the analyses?

Rai Sahib.—They were made in England by Mr. Turner. We sent our sand to him.

Mr. Boag.—Was the sand that you sent exactly in the condition in which you got it from the quarry?

Rai Sahib.—Yes.

Mr. Boag.—You did not treat it or wash it?

Rai Sahib.—No.

Mr. Boag.—You have given us the total estimate of the value of glass produced in India. In reply to Question 43, you say that the Indian production of the principal kinds of glasswares are estimated at 60 to 70 lakhs of rupees a year. What have you based that estimate on?

Rai Sahib.—I counted the number of factories and found out how many pots they were working. Then I took the tank furnaces of bangle factories and others. That was how I worked out the estimate.

Mr. Boag.—You include everything in this, bangles as well as others?

Rai Sahib.—Yes.

Mr. Boag.—You don't claim that it is an exact estimate?

Rai Sahib.—How can I? It is only a rough estimate.

Mr. Hodkin.—In reply to Question 4, I understood you to say that you work out your daily outturn according to the capacity of the machines?

Rai Sahib.—According to the number of bottles that we can turn out.

Mr. Hodkin.—On the machine?

Rai Sahib.—Yes.

Mr. Hodkin.—How many bottles per minute do you expect to get from your machine supposing you are making anything from 1 oz. to 8 oz.?

Rai Sahib.—Not more than 18 to 20 per minute.

Mr. Hodkin.—What about 8 oz. to 32 oz. bottles?

Rai Sahib.—Tincture bottles we turn out at 15 to 16 on O'neill machines.

Mr. Hodkin.—And on the Lynch machine?

Rai Sahib.—The same number.

Mr. Hodkin.—You have some Forster machines also?

Rai Sahib.—Yes.

Mr. Hodkin.—How many do you expect to get on these?

Rai Sahib.—I have no experience of those machines.

Mr. Hodkin.—Have you still got those Melin machines which you purchased?

Rai Sahib.—Yes.

Mr. Hodkin.—Do you know what your capacity there is?

Rai Sahib.—I think not more than 6 or 7 bottles per minute.

Mr. Hodkin.—Can you tell me which of the bottles which you set out on page 2 are made by machines and which by hand?

Rai Sahib.—Codd bottles, Crown cork bottles and whisky and brandy bottles and $\frac{1}{2}$ pint bottles and tincture bottles and screw tops are all done by machine. Chutney and pickle bottles are not done on the machine. Narrow mouth bottles are done by hand as well as by machine.

Mr. Hodkin.—What about wide mouth stoppered and unstoppered bottles?

Rai Sahib.—These bottles are made both by machine and by hand. Screw top wide mouth bottles and jars are made by machine only. Medicine and hair phials are made also by machine.

President.—The whole lot of them?

Rai Sahib.—We make them both by hand and by machine.

President.—Perhaps more by machine than by hand?

Rai Sahib.—Yes. Boot polish and inkpots are done by machine and by hand. Illuminating wares we do by mouth blowing and ornamental figured and ribbed glass is done by machine only.

Mr. Hodkin.—You have mentioned in your replies to Questions 11 and 12 the use of lime. Do you use limestone?

Rai Sahib.—Burnt lime entirely.

Mr. Hodkin.—You don't use limestone at all?

Rai Sahib.—No.

Mr. Hodkin.—It is always burnt lime?

Rai Sahib.—Yes.

Mr. Hodkin.—Was the analysis of lime also made in Sheffield? You said that your sand analysis was made in Sheffield?

Rai Sahib.—Yes.

Mr. Hodkin.—Where was the analysis of lime made?

Rai Sahib.—I sent it to Mr. Turner.

Mr. Hodkin.—Have you ever had an analysis made of the sand which you use for your lampware after it has been washed?

Rai Sahib.—We have not done it lately.

Mr. Hodkin.—Do you get a better colour as a result of using the sand after washing?

Rai Sahib.—Yes, we do get a better colour.

Glass and Bangles Industrial Association, Firozabad.

A.—WRITTEN.

(1) *Letter No. 1151/99, dated the 7th November, 1931.*

Herewith please find copies of the "Memorandum on protection to Glass Bangle Industry at Firozabad (Agra)". As we were very late in receiving information, we have not been able to give figures about costs of production, etc., in this representation. We shall, of course, be prepared to substantiate our statements, if called upon to do so later on. We hope to hear soon from you.

Enclosure.

—

Memorandum on protection to Glass Bangle Industry at Firozabad (Agra).

1. *Short History.*—Before coming to the subject proper it will not be out of place to trace in brief outline the history of this industry at this place. So far as it is known from very early times certain communities—still known as "Kacheras" or "Shishgars" (both terms meaning "Glass-makers")—used to prepare bangles out of a sort of opaque glass, which the made by heating in ordinary ovens, "Reh"—a kind of clay which contained both sand and sodium and potassium salts. The presence of large deposits of Reh in this area will perhaps account for the original choice of this site.

2. *Development.*—Though there has been great improvement both in the quantity and quality before that, the great improvement in the industry dates from the outbreak of the Great War. As most of the bangles came from the "Central European Countries", the outbreak of hostilities very nearly put a complete stop to their imports. Naturally this proved to be a very great impetus to the industry here and in an incredibly short period a large number of factories worked more or less on modern lines—cropped up, and the industry, as it were, passed overnight from the "Cottage" to the "Factory" stage.

3. *War and after.*—So great was the progress made during these momentous years that this town—unknown and unimportant till the other day—leapt into sudden prominence as the sole supplier of the major portion of the country's demand for bangles. New factories were constantly springing up and those existing were working overtime. For some time all went well and the industry showed daily signs of progress. But as events showed this prosperity was short-lived. With the signing of the Peace Treaty, matters took quite a different turn altogether; European Countries, now free from the turmoils of War, turned their whole attention to the markets which were temporarily lost to them. This infant industry proved no match to the organised efforts made by the foreign producers, and the inevitable crash was not long delayed. Factories began to close their doors one after the other and the industry was faced with a crisis of the first magnitude. Since then the industry has undergone many vicissitudes of fortune, but as yet it has not once succeeded in reaching its former level so far as quantity is concerned.

4. *Process of manufacture.*—The manufacture of bangles involves two separate and distinct stages—making of glass and then turning the glass into bangles. As the processes are somewhat technical, I propose at the very outset to give some general description of those employed here. We do not propose to go into the details of the intricate processes of manufacture or of the various actions and reactions that the articles employed undergo, it will be quite sufficient for our present purpose to confine ourselves to the barest outlines.

5. *Manufacture of Glass.*—The chief ingredients of glass are sand, sodium carbonate and limestone, and these when heated in specially constructed furnaces to a very high temperature fuse together into a molten mass, which hardens on cooling to form "Glass". The composition varies slightly according to the purpose for which the glass prepared is to be used, e.g., for glass used in making artificial gems where great brilliancy and refraction are needed, Sodium Carbonate may be replaced with Potassium Carbonate and certain other articles such as the Red Oxide of Lead may be added. The composition given above is the one used in the manufacture of glass needed for making bangles.

6. *Manufacture of Bangles.*—The second stage consists in making bangles out of the glass so prepared. Here also two different processes are employed. The *First or the Old Process* essentially consists in melting glass in specially constructed ovens and then casting it into bangles of the required shape and size. This method is very crude and as it involves a great deal of skill and labour, it is hardly suitable for large scale production. This has now been for the most part replaced by the *Second or the New Process*, which is comparatively easier to operate and more mechanical in character. In this case the molten glass is taken direct from the furnace and by a combination of many ingenious devices it is rolled into a spiral-like structure of the given size and fineness. These glass spirals are then cut into bangles, and the open ends are later on fused in a blow-pipe flame. These bangles are then decorated by the use of Liquid Gold and certain other chemicals, and are once again fired to make these decorative sketches comparatively lasting.

7. *The conditions laid down by the Fiscal Commission.*—Now coming to the subject proper, in paragraph 97 of the Report the Fiscal Commission laid down the following three conditions which should be satisfied in ordinary cases in order to establish claim for protection:—

- "(1) The industry must be one possessing natural advantages, such as an abundant supply of raw material, cheap power, a sufficient supply of labour, or a large home market.
- (2) The industry must be one which without the help of protection either is not likely to develop at all or is not likely to develop so rapidly as is desirable in the interests of the country.
- (3) The industry must be one which will eventually be able to face world competition without protection. In forming an estimate of the probabilities of this condition being fulfilled the natural advantages, referred to in condition (1) will of course be considered carefully."

8. *India's Resources in Raw Materials.*—As I said above the chief ingredients of glass are (i) Sand, (ii) Soda ash and (iii) Limestone. To these may be added (iv) coal, which is used as a fuel, and (v) fire-clay used in the making of furnace and crucible pots. It is apparent that this country is very rich in nearly all the raw materials mentioned above.

9. *Sand.*—Sand, perhaps the most important of these ingredients, is available in any quantity in Rajputana, Central India and the Bombay Presidency. The article is mainly obtained from Sawai Madhopur in Rajputana (Bombay, Baroda and Central India Railway), Lohra and Bargharh on the Great Indian Peninsula Railway. The quality obtained is fine and the prices are comparatively cheap.

10. *Limestone.*—Limestone of the best quality is to be found in India. There are large deposits of this substance in many parts of the country. Katni, in the Central Provinces, supplies practically the whole demand of this place for this article.

11. *Soda ash.*—Soda ash is at present mostly imported from Kenya, Germany and other foreign countries. Our country has ample raw materials for the manufacture of this article and efforts in this direction made in

Dhrangadhra State have already proved successful. There appears no reason why in the fulness of time Soda ash will not be prepared in India quite as efficiently and economically.

12. *Coal*.—Coal is required as a fuel, and in most cases the quality used is very ordinary. There are large deposits of this article in various parts of the country, and recent investigations have shown the existence of coal mines in many areas, unexplored so far. At present the coal-fields of Ranigunj and Jheria supply a major portion of the coal consumed here.

13. *Fire-clay*.—Fire-clay exists in many parts of the country and the manufacture of fire-bricks is carried on extensively. Jubbulpore is at present the chief centre for the supply of this article.

14. *Indian Labour in the Glass Industry*.—While dealing with the question of natural advantages and disadvantages of an industry, specific mention has been made to the supply of labour by the Fiscal Commission in their Report. In this respect the glass industry compares favourably even with those industries that are long established. Except in the beginning when experts were imported from Austria, Japan and other foreign countries, the industry is entirely in the hands of Indian skilled workmen. In this connection reference should be made to the presence of two distinct communities—Shishgars and Kacheras, whose hereditary occupation, as their very name suggests, has been the making of glass and bangles. These persons have shown remarkable power of adaptation, and with their old methods becoming obsolete, they seem to have become perfectly at home with the present improved methods. Though mostly illiterate, these people are very intelligent. One of the main reasons why this industry with so many natural advantages has been lagging behind, is that as yet absolutely no effort whatsoever has been made to impart modern technical knowledge to these persons. Repeated requests to the Government for the services of a glass expert to remove the difficulties of these Shishgars and to initiate them into modern and up-to-date methods have so far remained unheeded. There is little doubt that with a little coaching an average Shishgar can become a very efficient labourer. The wages are, of course, low, but it is doubtful if the labour here is really cheaper as compared to foreign countries.

15. *The Indian Market for Glass Bangles*.—One of the most important natural advantages that this industry can boast of is the existence of a steady and secure Home market. With a very large section of the population the use of glass bangles is more or less a religious obligation, a fact which ensures a steady demand for bangles. India is decidedly the largest consumer of bangles in the world, and it is doubtful if any other country uses this article in any appreciable quantity.

16. *Large Scale Production*.—The Report of the Fiscal Commission in dealing with "Additional Factors Strengthening a Case for Protection" has laid down the following in paragraph 98:—

"It is evident that an industry in which the advantages of large scale production can be achieved, i.e., in which increasing output would mean increasing economy of production, is, other things being equal, a particularly favourable subject for Protection."

It does not need much reasoning to show that the glass bangle industry is particularly suitable for large scale production. As a matter of fact, as I shall show later, our troubles have been chiefly due to our being unable to achieve the economies that naturally result from large scale production. At present practically no machinery is employed in any of the stage of production—a fact which, while on the one hand, speaks much of the skill and handicraft of the artisan, also, on the other hand, goes to show that as yet there is vast scope for improvement in this direction. Similarly while tank furnaces are universally employed on the continent and Japan, we have to content with the much more expensive "Crucible Furnaces".

17. *Expansion of the Industry.*—Turning again to the Report of the Fiscal Commission, we come across the following on page 55:—

“Another class of industry which should be regarded with a favourable eye is that in which there is probability that in course of time the whole needs of the country could be supplied by the Home Production.”

The capacity of this industry to supply for the entire needs of the country was demonstrated beyond any shadow of doubt, when during the war practically the entire imports from the European countries were stopped. Even at the present day the industry supplied nearly half the demand of the country, and given proper facilities, there is no reason why the entire demand of the country cannot be satisfied by Home Production.

18. *The Fiscal Commission's second condition: necessity of protection.*—From the above it is abundantly clear that both in the supply of raw materials and in having a secure Home Market, India is in the most favourable position so far as this industry is concerned. It is strange that with all these natural advantages India imports lacs worth of bangles every year. The figures given below are those supplied by the Director General of Commercial Intelligence and Statistics, Calcutta:—

1912-13.	1913-14.	1914-15.	1915-16.
£	£	£	£
412,841	536,321	183,649	154,389
1916-17.	1917-18.	1918-19.	1919-20.
£	£	£	Rs.
288,837	232,084	194,190	51,13,860
1920-21.	1921-22.	1922-23.	1923-24.
Rs.	Rs.	Rs.	Rs.
96,25,190	60,78,426	79,80,693	86,38,086
1924-25.	1925-26.	1926-27.	1927-28.
Rs.	Rs.	Rs.	Rs.
1,00,22,036	1,01,04,026	84,85,810	89,51,885
1928-29.			
Rs.			
76,76,438			

The industry here, as I have tried to show above, labours under a great many handicaps and it is most doubtful if it can develop without adequate protection from the Government, at least this is certain that the growth if at all will be extremely slow. The foreign manufacturer with all the advantages of large scale production and better organisation is in a position to produce goods of better quality and to sell them at comparatively lower prices. As I pointed above there is little machinery in employment here, and the methods used are more or less obsolete or in any case less economical than those employed elsewhere. This results in the double disadvantage, viz., production of inferior type of materials and at comparatively higher costs. Lack of capital, and not any aversion to innovation, is responsible for the total lack of machinery and the continuance of old and expensive methods of production. Indian capital is proverbially shy, and a new industry like that of ours cannot succeed in attracting capital, unless the investors are assured that the Government are bent upon protecting the industry from unfair foreign competition. That in the past a number of factories had to close, has very nearly shaken all confidence—a fact which

is reflected in there being no Joint Stock Company here, and unless the Government step in to restore this confidence, it is not likely to develop.

19. *40 per cent. Revenue Duty on Glass Bangles.*—In this connection it is worth mentioning that at present revenue duty amounting to 40 per cent. *ad valorem* is imposed on glass bangles. Looking superficially this may be regarded as bestowing a degree of protection. The fact of the matter, however, is that any protective effect which this revenue duty might have made is very much minimised by 20 per cent. duty on chemicals including soda ash. As we have seen that glass is composed of sand, lime and soda ash, it is apparent that the last one only is costly while the other two are very cheap materials. Thus a duty of 20 per cent. on the soda ash and other colouring chemicals seriously affects the price of glass. The duty on liquid gold and other decorative materials further raises the price and the ultimate protection afforded by the 40 per cent. revenue duty on glass bangles is very nominal. The chemicals which are used as raw materials in the manufacture of glass should be exempted from duty and a protective duty of 50 per cent. *ad valorem* must be imposed on all imported bangles.

20. *The Fiscal Commission's third condition: eventual ability of the industry to exist without protection.*—That this industry will be eventually able to face world competition is apparent from the advantageous position in which this country is situated both as regards raw materials and a more or less steady home market. In this connection I give an instance which will show that our hopes in this connection are not misplaced. Only some years back "Silky bangles" worth several lacs used to be imported from Japan every year. The market price for this kind of bangles was in the neighbourhood of 4 annas for 24. We began producing the same kind here and such was the progress made that in the course of a few years only we offer the same class of bangles to-day at the rate of 12 times 24 for the same amount, i.e., 4 annas. Needless to say that the import of this class of bangles has been entirely stopped.

21. *Conclusion.*—Under these circumstances it is clear that the glass bangle industry fully satisfies all the three conditions laid down by the Fiscal Commission. It shall be a pity if an industry with such natural advantages be made a victim of unfair foreign competition. This infant industry by its sheer perseverance and tenacity has earned its claim for protection and it is to be hoped that the Government will save this industry—which gives employment to some 10,000 persons—from extinction by timely and adequate protection.

(2) *Letter No. 1134/99, dated December 31, 1931, from the Glass and Bangles Industrial Association, Ferozabad.*

Herewith please find our replies to the questionnaire sent by you. We very much regret owing to a number of circumstances we have not been able to give exact figures in certain cases. We hope to supplement our statement in this connection when we appear before the Board for oral examination.

Enclosure.

REPLIES TO THE QUESTIONNAIRE.

1. Excepting one (The Friend's Glass Works, Ltd.) all the other glass works are unregistered firms for private proprietors. A list of the glass works at present in existence here is given in Appendix 1.

2. The entire capital is held by Indians. In the limited concern referred to above, the directors are all Indians. There is no foreigner either in the superior or inferior management.

3. The firms started at different dates. It is difficult to give exact dates but a rough idea is given in Appendix 1 referred to above.

4. For convenience's sake we propose to divide the works here into four classes:—

- (1) *Glass Furnaces*.—These produce block glass (Exh. A) used for the manufacture of bangles, phials, etc. Their number at present is 4 and the average capacity of each is about 120 maunds per day.
- (2) *Reshmi Bangle Furnaces*.—These make their own glass mostly and turn out silky bangles (Exh. B). Their number is about 12 and the capacity of each varies from 1,500 toras to 2,000 toras (a tora consists of 12 dozen pairs or 288 bangles) every day.
- (3) *Fancy Bangles Furnaces*.—These also make their own glass and turn out fancy bangles (Exh. C). Their number is about 8 and the capacity varies from 1,000 to 1,500 toras daily.
- (4) *Rough Bangles Furnaces*.—These produce very rough bangles (Exh. D), and they use glass produced by the big glass works referred to above (1). Their number is about 200 and the production of each furnace is from 200 to 250 toras a day.

5. (a) The various kinds of glassware manufactured here are:—

- (1) Block glass.
- (2) Reshmi bangles.
- (3) Fancy bangles.
- (4) Rough bangles.
- (5) Hurricane globes.
- (6) Paper-weights, jars, etc.

(b) It is difficult to give exact figures. Below we give certain approximate figures for block glass and different kinds of bangles:—

- (1) *Block glass*.—Production about 180,000 maunds annually (about 500 maunds a day) valued at Rs. 8,00,000 approximately at Rs. 4-8 per maund.
- (2) *Reshmi bangles*.—Production 50 lacs toras per year, valued roughly at about 15 lacs of rupees at about 5 annas per tora.
- (3) *Fancy bangles*.—Production about 25 lacs toras annually, valued at Rs. 75 lacs approximately at Rs. 3 per tora.
- (4) *Rough bangles*.—Production about 50 lacs toras per year, valued at Rs. 25 lacs approximately at 8 as. per tora.

6. The factories are all situated at Firozabad, Agra District, United Provinces.

(a) No, they are not advantageously situated in respect of vicinity to the areas from which the principal raw materials are drawn.

(b) No, the coal-fields are at considerable distances.

(c) Firozabad is centrally situated and as such occupies a very favourable position in respect of our important markets both in the Northern India and the Deccan. Besides in recent years this town has become a large distributing centre for foreign bangles.

(d) As regards labour, we are advantageously situated. Trained and specialised labour is always available in abundance, so much so that this place seems to hold a sort of monopoly for the supply of specialised labour and bangle factories at distant places, like Calcutta and Bombay, have to import labour from this place.

7. We consider the following to be the most important factors in selecting the site for a glass factory in India:—

- (1) Vicinity to areas from which principal raw materials like sand, lime, fire-clay, etc., are drawn.
- (2) Vicinity to coal-fields or other sources of power or fuel.
- (3) Supply of trained or specialised labour.

- (4) The place must possess modern means of transport.
- (5) Vicinity to important markets.
- (6) Other things being equal, a place near the sea must be preferred.
- (7) The place must have dry cold climate preferably.

8. Some of our products, *viz.*, superior class fancy bangles, are equal in quality and appearance to the foreign stuff, while others are of inferior quality. Most of them do not command the same price as the imported bangles. The lower prices are due to:—

- (1) Inferior quality, which itself is accounted for by—
 - (a) Lack of machinery.
 - (b) Lack of expert knowledge.
 - (c) Lack of capital.
- (2) Lack of proper packing facilities.

9. No, the production is not limited to certain months in the sense that in no particular months the factories are invariably closed. Some of the furnaces continue work all the year round and only stop for repairs, while others are comparatively more frequent in closing either for repairs or on account of holidays due to Hindu or Muslim festivals. Below we give some idea of the total number of working days in each kind of furnace and the reasons for the difference:—

- (1) *Block Glass Furnace.*—It goes on continually for the whole of the year without any break. The life of an average furnace is about 3 years. Practically no holiday is observed both because the number of persons employed is comparatively small and the nature of the work does not require continuous attention except for a few hours.
- (2) *Reshmi Bangles Furnace.*—For this the type of furnace generally employed, is of the semi-Japanese model—open pots with chimney—and the average life of such a furnace is about six months. The repairs may take about a month or so. The pots are to be replaced after some three months and this means stopping work for some two weeks each time this takes place. All the Hindu and Muslim festivals are observed as holidays. Thus considering all circumstances the total number of working days in a year come to about 200 days.
- (3) *Fancy Bangles Furnaces.*—The type of furnace is generally of the Japanese model—muffled pots with chimney—and the life of such a furnace is about 3 months. Generally there are two furnaces which work alternately and hence there is a saving of some months. Here also all the Hindu and Muslim festivals are observed as holidays. The total number of working days will be about 250.
- (4) *Rough Bangles Furnace.*—These are very small furnaces and produce very rough bangles only. In addition to Hindu and Muslim festivals all Fridays are observed as holidays. No great repairs are needed here, and the whole furnace can be built in the course of a few days. Fridays are utilised for partial repairs which are very frequent. Total number of working days about 200.

Yes, the fact contributes to an increase in the cost of production as compared to the cost in foreign countries.

Raw Materials.

10. The following is the list of raw materials used in the manufacture of glass including fire-resisting materials:—

- (1) Sand, soda ash, and lime—Chief ingredients.
- (2) Selenium, cadmium sulphide, cobalt oxide, zinc dust, etc.—Colouring Chemicals.

- (3) Fire-clay, fire-bricks, and Delhi clay—For furnaces and pots.
 (4) Coal—Fuel.

11. Our annual requirements of raw materials for all the furnaces is given below in round figures:—

- (1) Sand 15,000 maunds valued at Rs. 5,000.
 (2) Soda 60,000 maunds valued at Rs. 2·5 lacs.
 (3) Lime 8,000 maunds valued at Rs. 8,000.
 (4) Coal 20,000 tons valued at Rs. 2·5 lacs.
 (5) Fire-clay and fire-bricks 500 tons valued at Rs. 12,000.
 (6) Colouring chemicals Rs. 5 lacs.

12. The following are the calculations for different raw materials required for the production of 75 maunds of glass (*vide* Government Report on the Industrial Survey of the Agra District, page 42 of 1924:—

- (1) Sand 61 maunds.
 (2) Soda 24 cwt. (nearly 32 maunds)
 (3) Lime 10 maunds.
 (4) Colouring chemicals Negligible weight.

Below is given the approximate number of the different kind of bangles that are usually turned out of a maund of glass:—

	Toras.
(1) Reshmi bangles	40
(2) Fancy bangles	25
(3) Rough bangles	15

13. (a) Sand.—This is supplied chiefly from the following places:—

- (1) Sawai Madhopur (Bombay, Baroda and Central India Railway),
 Rajputana—Distance from Firozabad 164 miles.
 (2) Baragarh (Great Indian Peninsula Railway) United Provinces—
 Distance 225 miles.
 (3) Lohra (Great Indian Peninsula Railway) United Provinces—
 Distance 220 miles.

(b) Lime chiefly from Katni (Central Provinces)—Distance 392 miles.

(c) Fire-clay, etc., from Jubbulpore chiefly—Distance 448 miles.

(d) Soda and Colouring chemicals Imported from abroad.

14. We are not in a position to say as to how the raw materials are collected. They are transported by railway from the source of supply to the works.

15. We are not in a position to answer this question.

16. The cost of the raw materials delivered at the works are as follows. As we have already pointed out in our answer above we know little about the royalty and the cost of labour employed on collection, so we leave out the first two headings (a) and (b).

	Cost.	Freight.	Misc. charges.
	Rs. a. p.	Rs. a. p.	Rs. a. p.
(1) Sand	0 2 3 per md.	0 2 8 per md.	0 1 0 per md/
(2) Lime	0 6 6 „	0 4 8 „	0 1 0 „
(3) Soda	Delivered ex-godown		
	Firozabad at		
(4) Fire-clay	35 0 0 per ton.	0 7 2 per md.	0 1 0 per md.
(5) Fire-bricks	5 0 0 per 100	5 0 0 per 100.	1 0 0 per 100.
(6) Selenium	1\$ 80 cents		
	o.i.f. Bombay		
(7) Cadmium sulphide	55 cents per lb.	4 4 0 „	5 0 0 „
(8) Zinc oxide	30 per cwt.	1 12 0 „	1 0 0 per cwt.

17. No, we do not hold any concession as regards the supply of raw materials.

18. Yes, soda ash and colouring chemicals are imported chiefly from England, Germany and America. The custom duty on these chemicals at present is 25 per cent. *ad valorem*. Below we give a list of these chemicals together with their prices at the port less custom duty and other charges:—

- (1) Selenium metal 1/80 cents. per lb.
- (2) Cadmium sulphide 55 cents. per lb.
- (3) Cobalt oxide 87 Reich. Marks per lb.
- (4) Zinc oxide £32 per ton.
- (5) Zinc dust £27 per ton.
- (6) Arsenic £23 per ton.
- (7) Liquid gold £32 per kilo.
- (8) Soda ash Rs. 7-8 per cwt., f.o.r. Firozabad.

19. We are not in a position to answer this question. Soda ash was till recently manufactured at Dhrangdara, and the quality was quite satisfactory.

20. We do not think we can answer this question. No mechanical or chemical analysis of the raw materials has so far been made, and in the absence of any experiments with other articles we cannot say definitely if the materials being used by us at present are the most suitable for our purpose.

21. We are not in a position to answer this question.

22. Yes, except the Japanese type muffled pots, we make our own pots. The clay used is ordinary fire-clay obtained from Jubbulpore.

In order to build these pots almost equal quantities of burnt and unburnt fire-clay are mixed thoroughly and then made into a sort of paste with water. The clay remains in this state for a period of about two months during which time it is frequently turned over and kneaded. This is then taken out and cast into suitable moulds.

Muffled pots are imported from Japan at about Rs. 50 each (capacity 600 lbs.) f.o.r. Calcutta. There is considerable breakage in the transit, and it is possible that the life of the pots is also affected.

23. We are not in a position to answer this question.

Labour.

24. Though the processes employed in the manufacture of glass require expert supervision and the use of highly skilled labour, yet except in the beginning when certain Austrians and Japanese were imported, the entire work is carried on by Indians at present.

25. Does not arise.

26. Most of the skilled labour employed at present comes from a distinct class amongst the Mohammedans known as, Shishgars (meaning "Glass makers") who have been carrying on this calling for many centuries in the past. The skill is handed down from father to son, who generally begins to work with his father at a very early age. The members of this community are very jealous of any outsider entering the profession.

Though mostly illiterate these people are very intelligent. One of the main reasons why this industry with so many natural advantages has been lagging behind is that as yet absolutely no effort whatsoever has been made to impart modern technical knowledge to these persons. Repeated requests to the Government for the services of a glass expert to remove the difficulties of these people and to initiate them into modern up-to-date methods has so far remained un-heeded. There is no doubt that with a little coaching an average Shishgar can become a very efficient labourer.

27. Yes, there is vast scope for the replacement of skilled labour by automatic or semi-automatic machines. Already a beginning has been made in this direction and the old crude system requiring much skill and labour is gradually being replaced by the comparatively modern "Spiral method"

28. The chief considerations which prevent a more extensive employment of machinery are:—

(1) Lack of capital.

(2) Lack of expert knowledge.

29. We are not in a position to answer this question.

30. Below we give latest figures available for—

Type of furnace.	Total wages paid.		Average rate of wages.		Total No.* workmen.
	Rs.		Rs.		
Block Glass . . .	7,200	Skilled . . .	. 30 per month.		35
		Un-Skilled . . .	. 12	„	
Reshmi Bangles . . .	27,300	Skilled . . .	. 30	„	120*
		Un-Skilled . . .	. 12	„	
Fancy Bangles . . .	36,700	Skilled . . .	. 45	„	120*
		Un-Skilled . . .	. 12	„	

31. Most of the workmen are local labourers and so the question of housing them does not arise.

Power and Fuel.

32. The principal fuel used is coal. It is available in sufficient quantities.

33. The fuel is brought from Jheria and Ranigunj coal fields. Distance of both the places is about 700 miles.

The freight is about Rs. 8 per ton (from the 15th of January 1932 there shall be an increase of 15 per cent. in these rates).

The total cost of coal delivered at the works is about Rs. 12 per ton (Rs. 3-8 per ton price of coal, As. 8 miscellaneous charges).

34. The fuel is applied directly in most cases. In only one furnace it is used in the form of gas. The former method is economical and the furnace is simple to make and easy to work.

35. Power is used in the "Cutting for Decoration" process. The engines are mostly oil engines.

36. The total quantity of fuel per ton of glass will come to approximately one ton in direct furnaces, and about 1½ tons per ton of Reshmi and Fancy Bangles in the Japanese and Semi-Japanese furnaces.

Equipment.

37. No, they are not sufficiently large as a unit of production. It is difficult to give a definite idea as to the smallest unit of production which can be operated economically under the present conditions, but this much can safely be said that our works are just in the beginning stage and as yet there is a vast scope for improvement and addition.

38. There is very little of modern machinery here. The manufacture of bangles involves different processes, which are carried on in different furnaces, equipped for that particular stage. A detailed description of the processes is given on page 123, paragraph 4, of our Memorandum, already submitted to the Board.

* Most of the work is carried on contract system.

39. As we have already pointed out we have very little of machinery in employment here. Most of the work is done very crudely by hands, and in this respect we have been placed in the most disadvantageous position so far as competition with foreign manufacturers is concerned. It is of the utmost importance that efficient modern machinery should take the place of old and un-economical methods that are at present universally employed. The introduction of machinery will mean production of better type of material at comparatively cheaper cost.

40. Very recently efforts have been made to substitute mechanical processes for some of the most tiresome manual operations and the results obtained so far have been very encouraging.

41. We are not in a position to answer this question.

42. The question does not arise as there is very little of machinery in employment here.

Market and Foreign Competition.

43. For reply to this question please refer to our reply on page 128 to your question No. 5 (b), where we have given the approximate valuation of the quantity produced.

44. As a matter of fact the whole of the country is a market for our bangles. Below we give the names and the distance of some of the most important distributing centres for our bangles:—

	Miles.
Bombay	Distance about 850
Calcutta	" " 766
Madras	" " 1267
Lahore	" " 531
Jubbulpore	" " 448
Rewa	" " 400

45. Second class for glass bangles. No, we have no advantage in this respect over imported bangles.

(b) The railway freight is charged on gross weight. As regards the normal ratio of nett weight to gross weight, it differs with the method of packing:—

Double-basket packing (Old system).—Ratio of nett weight to gross weight will come to about 4 : 5.

Wooden box packing (Improved system).—Ratio 4 : 6.

46. We shall be giving exact figures later on.

47. Yes, the export of bangles from India to foreign countries is not only probable but extremely desirable. It is very much to be regretted that no serious efforts have so far been made to capture the vast markets in the countries adjoining our own, viz., Afghanistan, Persia, Siam, Ceylon, Sumatra, Java and South Africa.

48. The foreign countries from which the competition in the Indian market is keenest are, Austria, Czecho-Slovakia and Japan.

The competition is keenest at the port towns, viz., Bombay, Calcutta, Madras, Rangoon and others. To some extent Firozabad is also a distributing centre for these foreign bangles.

As regards the class of bangles, Japan mostly exports comparatively cheap quality bangles (lustre, silky, and kara). Austria and Czecho-Slovakia are exclusively concerned with superior quality fancy bangles.

49. There being thousands of varieties both in the imported and locally made bangles, it is difficult to give figures for each. Moreover names in the foreign and local stuff are in most cases different, and it will be simply

confusing unless the varieties quoted are exhibited as well. We propose to bring samples of some of the bangles—foreign and indigenous, while appearing before the Board.

50. For reasons given above, we cannot answer this question.

51. No, we have not been favoured with any order from the Government or any other public body for our bangles so far.

52. So far as we know we can say that the foreign manufacturer is distinctly in an advantageous position as compared to ourselves in respect of all the factors mentioned in the question.

Plant and Machinery.—As we have already mentioned in our reply to question No. 38 above, we have very little of machinery in employment here. Most of our difficulties are due to this lack of machinery and other equipment.

Labour.—The labour here is mostly un-trained and there is absolutely no facility for imparting modern technical knowledge to the local workman. The wages are, of course, low, but it is doubtful if the labour here is really cheaper as compared to foreign countries.

Materials.—The foreign manufacturer gets better and more suitable materials at comparatively cheaper rates. At any rate the quality of the material is much better and consequently the product is of a superior quality.

Climatic conditions.—Tropical countries are not very suitable for glass factories. In some parts of the year it is very difficult to stand the high temperature of the glass furnace. There is also considerable breakage in the rainy season due to great humidity in the atmosphere.

Custom duties.—We have to pay about 25 per cent. custom duty on glass chemicals imported here, and besides this we have to bear shipping and other charges.

Freight.—We are not in a position to answer this question.

Apathy of Government.—The Government here have done practically next to nothing to help this infant industry.

53. The idea generally prevailing here is that the foreign manufacturers dump their products, but we are not in a position to substantiate this allegation.

Capital.

54. The factories and furnaces here are of several types and dimensions and it is difficult to give figures for each. Below we give in round figures block value of property in each type:—

Type.	Leases and concessions.	Lands.	Plant and Machinery.	Misc. Assets.
		Rs.	Rs.	Rs.
Block glass factory (Building Rs. 12,000).	Nil	10,000	5,000	40,000*
Reshmi bangles factory (Building Rs. 6,000).	Nil	5,000	3,000	7,000*
Fancy glass bangles factory (Buildings Rs. 8,000).	Nil	5,000	5,000	10,000*
Rough bangles furnace (Building Rs. 300).	Nil	200	100	500*

* This includes implements, miscellaneous stock, raw materials, finished products, and book assets.

55. Below we give figures for depreciation in each type of the furnace:—

	Per year. Rs.
Block glass	1,000
Reshmi bangles	800
Fancy bangles	1,500
Rough bangles	150

56. Due to economic depression the value of lands and building materials have considerably gone down, and the present day cost under the heads (a) buildings and (b) plant and machinery will be about 20 per cent. less than that given above.

The operating cost will remain the same.

57. We have no limited concern here except one and that too after having remained closed for a number of years has begun work only last year.

58 & 59. The question does not arise.

60. It is difficult to answer the question in view of the diversity of the nature of works here.

Works Costs and Overhead Charges.

62. Below we give figures for breakage and wastage in the different stage of manufacture:—

Reshmi and fancy bangles—	Per cent.
Making	5
Cutting	15
Joining	5
* Decoration /	10

The breakage and wastage in the crude system of making bangles will amount to only 5 per cent.

Very little progress has been made in this direction.

63. We are not in a position to answer this question.

64. The Income-tax authorities allow 5 per cent. depreciation on buildings, but no depreciation on furnaces, etc.

65. It is difficult to give figures for all the works here.

66. No, we have no Head office other than the office of the local management.

Claim for Protection.

67. All the three conditions are fully satisfied in the case of Bangle industry. We have discussed the question at considerable length in our Memorandum submitted to the Board (*vide* paragraphs 7 to 20).

68. We consider that a duty of 50 per cent. *ad valorem* must be imposed on all imported bangles, and further that chemicals used in the manufacture of glass must be exempted from duty.

69. No industry will be affected by protective duty on bangles.

* For fancy bangles only.

APPENDIX I.

Name.	Started in the year.
<i>Block Glass Furnaces.</i>	
1. The Indian Glass Works	1908
2. The Coronation Glass Works	1912
3. P. M. J. P. Friends Glass Works	1912 & 1929
(Friends Glass Works started in 1912 and closed in 1926. Restarted as P. M. J. P. Friends Glass Works in 1929.)	
4. The Bhanni Lal Glass Works	1919
5. The Hanuman Glass Works	1926
<i>Reshmi Bangle Furnaces.</i>	
6. The Nizamuddin Glass Works	1926
7. Kadir Bux Sikander Bux Glass Works	1927
8. Sadulla Shahabuddin Glass Works	1927
9. Shahabuddin Riazuddin Glass Works	1927
10. Abdul Rahman Abdul Ghani Glass Works	1927
11. Ustad Karim Bux Glass Works	1927
12. Gauri Shanker Dau Dayal Glass Works	1928
13. The Lakshmi Glass Works	1929
<i>Fancy Glass Bangles Works.</i>	
14. Bhure Gulsher Glass Works	1927
15. Vidya Ram Ram Swarup Glass Works	1929
16. Bhajan Bihari Lal Magan Bihari Lal Glass Works	1929
17. Mool Chand Mahendra Singh Glass Works	1931
18. Ram Chand Roshan Lal Glass Works	1927
19. Asa Ram Rati Ram Glass Works	1931
20. Panna Lal Ram Prakash Glass Works	1929

FORM I.—Statement showing the total expenditure incurred at works on the production of Glass (Block) for the year 1930.

	Rs.
I.—Raw materials—	
(a) Sand	7,500
(b) Soda ash	56,250
(c) Lime	1,500
(d) Crucibles	800
(e) Refractory materials	200
(f) Colouring chemicals	25,000
II.—Works labour	5,000
III.—Power and Fuel	16,000
IV.—Supervision and office	2,000
V.—Current repairs and maintenance	500
VI.—Packing	1,000
VII.—Selling expenses	Nil.
VIII.—Miscellaneous	3,000
TOTAL	1,18,750
Total production in tons of glass	1,100

The above is the statement of account of one of the block glass works. Figures will, of course, vary specially with a works which produces red and yellow glass more than any other.

FORM II.—Statement showing the works expenditure for Reshmi and Fancy Bangle Furnaces for 1930.

	Reshmi. Rs.	Fancy. Rs.
I.—Raw materials—		
(a) Sand	2,000	2,000
(b) Soda ash	13,000	12,000
(c) Lime	200	350
(d) Crucibles	600	2,000
(e) Refractory materials	200	300
(f) Colouring chemicals	12,000	10,000
II.—Works labour	25,000	40,000
III.—Power and fuel	10,000	12,000
IV.—Supervision and office	2,300	2,400
V.—Current repairs	2,000	5,000
VI.—Packing	2,000	4,000
VII.—Selling expenses	Nil.	3,000
VIII.—Glass	6,000	Nil.
Decoration	Nil.	1,20,000
IX.—Miscellaneous	2,000	3,000
X.—Cutting	Nil.	1,00,000
TOTAL	77,300	3,16,050
Less Credit for materials recovered	1,300	1,050
NETT TOTAL	76,000	3,15,000
Total output in the year	300,000 toras	100,000 toras.

**GLASS AND BANGLES INDUSTRIAL ASSOCIATION,
FIROZABAD.**

B.—ORAL.

**Evidence of Pandit SUSHIL CHANDRA, M.Sc., LL.B., President,
Babu GANGAPRASAD, Secretary, Glass and Bangles Industrial
Association, Firozabad, and Mr. P. D. SINGHANIA,
recorded at Bombay, on Tuesday, the
19th January, 1932.**

President.—Gentlemen, you represent the Glass and Bangles Industrial Association, Firozabad?

Mr. Chandra.—Yes.

President.—Do your members represent the bulk of the output—practically the whole of the output—of bangles and glass at Firozabad?

Mr. Chandra.—Yes.

President.—You give in the Appendix to your replies a list of Glass and Bangles Works at Firozabad?

Mr. Gangaprasad.—Yes.

President.—Can we take that as a list of your members?

Mr. Gangaprasad.—That is not a complete list of our members because some of our members are also dealers in bangles.

President.—The dealers also are your members?

Mr. Gangaprasad.—Yes.

President.—Are there cases of manufacturers who are also dealers?

Mr. Gangaprasad.—Yes, but not many.

President.—In the great majority of cases, the manufacturers and dealers are separate people?

Mr. Gangaprasad.—Yes.

President.—How many works, besides those shown in this list, are members of your Association? Are there many works outside this list?

Mr. Gangaprasad.—The list is not complete. There are some factories which are not working at present. They are also members.

President.—These are the works belonging to members that are at present working?

Mr. Gangaprasad.—Yes. To the list appended to our replies, four more names have to be added.

President.—In reply to Question 4, you give the groups into which the various works could be classified?

Mr. Gangaprasad.—Exactly.

President.—The numbers that you give there total up 24?

Mr. Gangaprasad.—Yes.

President.—But in this list you show only 20. I suppose 4 or 5 works have probably been omitted from the list?

Mr. Gangaprasad.—Yes.

President.—Looking through this list, I find that with the exception of two or three works which belong to the first group, viz., Block Glass Furnaces, all the works have been practically started since the war?

Mr. Gangaprasad.—Yes.

President.—And the two or three works which were started before the war are works which manufacture block glass?

Mr. Gangaprasad.—Yes.

President.—Therefore I am right in thinking that the development of the bangle industry of Firozabad, as far as reshmi bangles and fancy bangles are concerned, is a development which has occurred since the war?

Mr. Gangaprasad.—Yes.

President.—The three works which were started before the war are block glass furnaces?

Mr. Gangaprasad.—Yes.

President.—As you say in reply to Question 4, the rough bangle furnaces get their glass from the block glass works?

Mr. Gangaprasad.—Exactly.

President.—Therefore the position of the bangle industry before the war was that they were mainly concerned with the manufacture of rough bangles?

Mr. Gangaprasad.—Yes.

President.—Reshmi and fancy bangles began to be manufactured after the war?

Mr. Gangaprasad.—After the war and during the war. Most of the factories were actually started during the war.

President.—That is to say, the conditions created by the war enabled you to manufacture the superior classes of bangles?

Mr. Gangaprasad.—Yes.

President.—Which I suppose before the war were mainly imported?

Mr. Gangaprasad.—Yes.

Mr. Singhanian.—At that time certain promises were made by Government that they would support the industry and on account of those promises capital was forthcoming.

President.—On account of the assurance of support from Government capital was sunk in the industry?

Mr. Singhanian.—Yes.

Mr. Rahimtoola.—Did that assurance materialise?

Mr. Singhanian.—No, it did not.

President.—I find from your reply to Question 5 that you estimate the total production of block glass as 180,000 maunds. Under item 4 to your reply to Question 5 (b), the total production of rough bangles is given as 50 lakhs of toras. In your reply to Question 12, you give 15 toras as the number of rough bangles that you can get out of a maund of glass. On that basis 180,000 maunds would give you 27 lakhs of toras. Is that right?

Mr. Gangaprasad.—Yes.

President.—The total production of rough bangles is 50 lakhs of toras. Out of that 27 lakhs is made from block glass manufactured in block glass furnaces?

Mr. Gangaprasad.—Yes.

President.—Where do they get the rest of the materials from?

Mr. Gangaprasad.—This seems to be a rough estimate. We get some amount of rough glass from Purdulpur, Akrahad and other places. That is also converted into bangles at Firozabad.

President.—What is it called?

Mr. Gangaprasad.—That is block opaque glass. They have no regular furnaces. They have only ovens and they make glass by the crude method.

Mr. Singhanian.—When the winter season comes to an end, they collect the crude salt alkali deposit.

President.—So that you are able to get a certain amount of crude glass manufactured at Purdulpur, Akrahad and other places?

Mr. Gangaprasad.—Yes.

President.—How far is Purdulpur from Firozabad?

Mr. Gangaprasad.—About 35 miles.

President.—And that crude glass is used in the manufacture of bangles?

Mr. Gangaprasad.—Yes.

President.—I take it that as far as reshmi and fancy bangles are concerned, the manufacturers of those bangles make their own glass?

Mr. Gangaprasad.—Yes.

President.—They make their own glass without exception?

Mr. Gangaprasad.—In the case of reshmi bangles, they have to use block glass to some extent.

President.—But in the main they make their own glass?

Mr. Gangaprasad.—Yes.

President.—So also the manufacturers of fancy bangles?

Mr. Gangaprasad.—Yes.

President.—I should like to turn to Form II where you show the works expenditure for reshmi and fancy bangles. These represent the works expenditure of a sort of typical representative factory?

Mr. Gangaprasad.—Yes.

President.—It is not the actual expenditure incurred by any particular factory but what you consider to be the works expenditure of a specimen factory?

Mr. Gangaprasad.—We have obtained these costs from a particular factory.

President.—It more or less represents the actual costs incurred?

Mr. Gangaprasad.—Yes, in round figures.

President.—It represents the costs incurred by a particular factory which you consider to be a typical representative factory?

Mr. Gangaprasad.—Yes.

President.—Looking at the works expenditure I find with regard to reshmi bangles you give your net total expenditure as Rs. 76,000 and then you give your total output in terms of toras of bangles. I take it that the estimate in terms of toras is based on the proportion of 40 toras to a maund?

Mr. Gangaprasad.—Exactly.

President.—That on my calculation gives a cost of 4 annas per tora?

Mr. Gangaprasad.—Yes.

President.—What exactly is the price which is generally realised for reshmi bangles?

Mr. Gangaprasad.—At Firozabad you mean?

President.—Yes.

Mr. Gangaprasad.—4 annas 3 pies to 4 annas 6 pies per tora without packing.

President.—That is the net price that you realise?

Mr. Gangaprasad.—Yes *ex works*.

President.—It does not include packing expenses or freight?

Mr. Gangaprasad.—No.

President.—Look again at your reply to Question 5. There you value the total production of reshmi bangles at 5 annas per tora. What is this 5 annas? Is it the cost or the price realised?

Mr. Gangaprasad.—It is the price realised.

President.—You would say approximately that the price realised is 4 to 5 annas?

Mr. Gangaprasad.—We said 5 annas in order to give you in round figures.

Mr. Singhanian.—The bigger sizes do cost 5 annas.

Mr. Gangaprasad.—This 5 annas includes paper packing.

President.—The figure that you would like to place before us is 4 annas to 4 annas 6 pies per tora?

Mr. Chandra.—You can take 4 annas 6 pies as the average price.

President.—If you take 4 annas 6 pies as the average realised price per tora, that gives you a price of 4½ pies per dozen pairs?

Mr. Gangaprasad.—Yes.

President.—The price that we have received from importers—the lowest price that we have seen from invoices—is 10 pies per dozen pairs.

Mr. Gangaprasad.—Yes.

President.—When the price ruling in the ports is 10 pies, you are able to realise at Firozabad only 4½ pies. Is that correct?

Mr. Gangaprasad.—Yes.

President.—How do you account for this big difference?

Mr. Gangaprasad.—Packing will account for a lot of the difference. There is also breakage in transit which has to be taken into account. Bombay is the chief distributing centre. We only supply them to local markets—just near about. Supposing we have to send our goods to Madras, we will have to send them either *via* Manmad or *via* Calcutta. Bombay is the chief distributing centre, and so in Bombay our price will be more than 10 pies.

President.—The chief items that account for the difference are packing, freight and breakage?

Mr. Gangaprasad.—Yes.

Mr. Singhanian.—And quality also accounts for a part of the difference.

President.—Let us take these items one by one. As regards packing your suggestion is that if the price in Bombay is 10 pies, that 10 pies represents also the packing charges. They are packed in card board boxes, aren't they?

Mr. Gangaprasad.—Yes.

President.—Have you ever tried to pack any of your bangles in card board boxes?

Mr. Singhanian.—We have tried.

Mr. Gangaprasad.—On a small scale, it was tried but not successfully.

President.—Have you found out the cost?

Mr. Gangaprasad.—Mr. Katrak gave you some figures yesterday.

President.—Yesterday he was not able to give us the quantity which the total expenditure incurred by him represented. What I want you to tell me is this. If you take a dozen pairs and pack that dozen pairs in a card board box, what would it cost you?

Mr. Singhanian.—It will be about 12 to 15 pies per dozen pairs.

President.—I take it that you are assuming that one box will contain a dozen pairs?

Mr. Singhanian.—Yes.

President.—It is not a box for a tora?

Mr. Singhanian.—No.

President.—It will cost as much as 12 pies?

Mr. Singhanian.—Yes.

President.—How exactly is the packing done?

Mr. Gangaprasad.—We string them up, wrap them in old newspapers and then they are placed in baskets with hay round the bangles in the case of small consignments. In the case of wagon loads we do not use packing of that sort.

President.—If you are able to load a complete wagon the packing is simple; the 144 pairs are strung together wrapped in ordinary newspaper and then put into the wagon?

Mr. Singhania.—No; they are put straight into the wagon and we just put hay inside the wagon to reduce breakage.

President.—If you are sending in small consignments then you would pack them in baskets?

Mr. Singhania.—Yes, in reed baskets.

President.—In that case do you pack in hay first before you put the bangles into the basket?

Mr. Singhania.—Yes.

President.—Have you any idea what the breakage in railway transport amounts to? Let us take a wagon load.

Mr. Gangaprasad.—I am not in a position to give you accurate information, but it will be about 30 to 40 per cent.

President.—That is in complete wagon loads?

Mr. Gangaprasad.—Yes.

President.—Thirty per cent. will not be a wrong figure to take?

Mr. Gangaprasad.—No.

President.—The bulk of your consignments is sent in wagon loads?

Mr. Gangaprasad.—No; in small lots. Wagon loads are very few. Our wagon load consignments are mainly for Madras. Sometimes we do send some to Bombay, but it is very seldom.

President.—At present the bulk of your consignments are sent in small lots?

Mr. Gangaprasad.—Yes.

President.—And that accounts, I suppose, for the large percentage of breakage?

Mr. Gangaprasad.—And also because the packing costs are more when sending the bangles in small lots.

President.—You mean the extra expenditure in packing would be more than the loss by breakage?

Mr. Singhania.—Yes.

President.—This figure that you have given me of 40 toras of resham bangles to a maund of glass, does it mean that if you make a maund of melted glass and manufacture bangles out of it, then the resultant number of bangles is 40 toras? It does not mean that the weight of 40 toras is one maund? In the first place what is your percentage of breakage in the works?

Mr. Gangaprasad.—Whatever the breakage in the works it is again melted so we don't take that loss into consideration at all.

President.—That is not the point. Let me take 25 per cent. as your breakage in your works. Would that be right?

Mr. Gangaprasad.—That would be about right.

President.—If we take one maund of glass as it comes out of the furnace, one-fourth of a maund would be broken glass. In the process of making bangles you would lose 25 per cent. by breakage. One-fourth of a maund is broken; therefore three-fourths of a maund is left; that represents 40 toras, am I right?

Mr. Singhania.—No, We have given the weight of 40 toras,

President.—If 40 toras weigh one maund then actually the amount of melted glass that would be required for the manufacture of 40 toras is something more than one maund including breakage?

Mr. Gangaprasad.—Yes.

President.—I take it then that on that basis you require $1\frac{1}{4}$ maunds of melted glass to make 40 toras?

Mr. Gangaprasad.—Yes.

President.—This is a smaller weight than I have seen in any other case, that is to say I have never seen in the figures supplied to us by other parties that 40 toras weigh one maund. It will be considerably more than one maund.

Mr. Gangaprasad.—That is right. As I said before, in the beginning our quality was inferior. We have taken the average. We also manufacture small reshami bangles for children and we also make thinner bangles and we have taken the average weight and we are quite sure that our weight is quite correct. As a matter of fact it also accounts for our realising lower value for our bangles.

President.—That is quite clear that if the colour is the same, the finish is the same and the decoration is the same then the heavier bangles fetch a higher price.

Mr. Gangaprasad.—That is quite true. I think you are perfectly aware that Indian made articles are always sold at a lower price. If I go to Whiteaway Laidlaw's I will pay a higher price for the same thing than if I go to the bazar and buy the same quality.

President.—Before I can understand the real expenditure incurred by you, I must have some idea of the total output which this expenditure represents in Form II. You have given it in the shape of toras; I want it in the form of maunds or tons of glass.

Mr. Gangaprasad.—Just divide by 40.

President.—At 40 toras to a maund three lakhs of toras represent 275 tons of glass?

Mr. Singhanian.—Yes.

President.—Add breakage to that to get the melted glass. My point is this: the weight of 3 lakhs of toras is about 275 tons. In order to get that quantity of finished toras you require 275 plus $\frac{1}{4}$ of that as melted glass.

Mr. Singhanian.—My submission is that it is not necessary to take that view because that glass we melt again.

President.—I am perfectly aware of that fact and I am going to make allowance for it, but at present let us simply go on the quantity: 275 plus $\frac{1}{4}$ will give you 367 maunds of melted glass in the furnace.

Mr. Singhanian.—That is right.

President.—Your total expenditure on sand is Rs. 2,000. I find from your figures that Rs. 10 is the cost of sand per ton.

Mr. Gangaprasad.—Three maunds of sand cost one rupee; that means Rs. 9 per ton.

President.—Let us take it at Rs. 9. Rs. 2,000 is the total expenditure at Rs. 9 a ton, so that it will come to 220 tons of sand.

Mr. Gangaprasad.—Yes.

President.—In answer to question 12 you give us the various proportions in which the various materials are used.

Mr. Gangaprasad.—This is from the Government Report on the Industrial Survey of the Agra District, 1924. There is a slight variation.

President.—In the main do you accept that as the practice?

Mr. Gangaprasad.—Yes.

President.—If 220 tons is the total quantity of sand $\frac{2}{3}$ of that represents the quantity of glass you get?

Mr. Gangaprasad.—That is right.

President.—That is 275. Now we have got to get 367. You have used a certain amount of glass the total cost of which you give as Rs. 6,000. What quantity of glass does that represent?

Mr. Singhania.—Something more than 2,000 maunds. It is the block glass that we have used.

President.—What is the price of block glass?

Mr. Singhania.—White coloured block glass costs Rs. 2-14-0 a maund; on that basis it comes to more than 2,000 maunds.

President.—Let us say that is about 75 tons.

Mr. Singhania.—That is right.

President.—The figures tally quite all right. In your expenditure on reshmi bangles you enter nothing against selling expenses. What is the idea of that?

Mr. Singhania.—We sell *ex* works and therefore we do not pay any discount. So far as reshmi bangles are concerned we are very advantageously situated in Firozabad.

President.—Everybody comes to Firozabad and asks for bangles and you simply produce them?

Mr. Singhania.—Not that way. We sell *ex* works and we have not got to incur any charge of any kind.

Mr. Gangaprasad.—Even if we happen to have large stocks we don't send agents outside.

President.—You allow yourselves credit for Rs. 1,300. What is this?

Mr. Gangaprasad.—That is the value of the cinders and ashes.

President.—Who takes the cinders?

Mr. Gangaprasad.—Sweetmeat makers and people of that sort.

President.—I think this is a good statement. Your total expenditure on power and fuel is Rs. 10,000?

Mr. Gangaprasad.—Yes.

President.—That at your present price of coal represents about 833 tons?

Mr. Singhania.—Yes, but it would be safer to take it at a lower figure.

President.—What is the present price of coal delivered at the works?

Mr. Singhania.—Rs. 3-0-0 to Rs. 3-8-0 since 1930 *ex* colliery siding.

President.—I am trying to find the consumption of coal per ton of finished bangles and the quantity of finished bangles is 275 tons. That is about 3 tons?

Mr. Gangaprasad.—Yes.

President.—I make out 3 tons of coal per ton of finished bangles. 2½ tons of coal per ton of melted glass. The total amount of glass that you require was 367 tons. Out of that you deduct 75 which came in the form of glass. That gives you 292 tons. That is between 2½ and 3 tons per ton of melted glass. That is rather high.

Mr. Gangaprasad.—There are three places in which heat has to be applied. First of all coal has to be used in the furnace. There is a rotating machinery which the Board saw when they visited Firozabad. There also we have to apply heat. Then again heat has to be applied where the block glass is melted. In the light of these things the coal consumption does not seem to be high.

President.—It is more or less a correct statement of the position?

Mr. Singhanian.—This 2½ tons of coal is not merely for the melted glass. In the making of bangles also a certain amount of coal is required. You take that also into consideration. It will not be considered too high.

President.—This is taking the coal consumption including the manufacturing processes and dividing it among the melted glass?

Mr. Singhanian.—Yes.

President.—There is one point which has caused me a good deal of difficulty. The figures I have seen vary so much and I am unable to make up my mind. That is on the question of colouring materials. I am quite aware that the proportions of colouring materials are trade secrets of manufacturers. Therefore I don't want you to disclose to me what you consider to be trade secrets. I would like to get a rough idea of what might be considered to be the normal practice in this matter. Some particular manufacturer probably has his own secret proportion. I don't want that to be disclosed. What I want to know from you as experienced manufacturers of bangles is what you would consider to be reasonable proportion of these materials.

Mr. Singhanian.—There is no hard and fast rule about these proportions and just as one cotton manufacturer will use Cambodia and another some other quality, so also every glass manufacturer has got his own way of mixing. As regards these items that are given here, every factory has to use them. Only the proportions may vary from 2 to 2½ per cent. So far as I see there is no prospect of any improvement in respect of these things.

President.—What your position comes to is this: if you manufacture 275 tons of reshami bangles of the kinds which are in ordinary demand in the market, the cost of colouring chemicals at present prices.....

Mr. Singhanian.—Not at present prices. I have taken the price of 1930.

President.—The price would be considerably higher.

Mr. Singhanian.—The price has gone up.

President.—You are still purchasing from America?

Mr. Singhanian.—America is the only country which produces selenium one of the most important chemicals that is used in the manufacture of glass bangles.

Mr. Ganqaprasad.—The whole thing is given on page 131 in reply to question 18. You will see the prices vary very greatly in the matter of zinc oxide and zinc dust. One is a dear product and the other is comparatively cheaper.

President.—Selenium is very expensive?

Mr. Singhanian.—Yes.

President.—What is the distinction between the various class of bangles from the point of view of the use of selenium?

Mr. Singhanian.—Selenium is only used in the manufacture of red bangles.

President.—Taking Form II as it stands out of 275 tons of bangles, how much is red bangles?

Mr. Singhanian.—80 per cent. red and yellow and 20 per cent. other-kinds.

President.—If you are making yellow and amber, have you got to use the same proportion of selenium?

Mr. Singhanian.—No.

President.—Except for red you don't use selenium?

Mr. Ganqaprasad.—No.

President.—You would say about 50 per cent. are red bangles?

Mr. Singhanian.—More than that.

Mr. Ganqaprasad.—50 per cent. red and 30 per cent. yellow.

President.—20 per cent. would be various miscellaneous kinds?

Mr. Gangaprasad.—Yes.

President.—Therefore on the 50 per cent. you have to use selenium?

Mr. Singhanian.—Yes. It is only our opinion. We can't give any accurate figures.

President.—Any slight difference in the consumption of selenium makes a difference in the cost?

Mr. Singhanian.—That is why I have taken this proportion.

President.—In order to determine the typical cost of the Indian factory, I have to get a fairly clear idea, otherwise the whole estimate will be upset.

Mr. Singhanian.—Yes. Our whole difficulty has been, as the Board itself has seen, that the trade not being in the hands of educated people, we could not supply figures regarding the various kinds of bangles turned out and the amount of each chemical and other things used in their manufacture, but of course we have tried our utmost.

President.—You consider this Rs. 12,000 as the expenditure on colouring chemicals on an output of 275 tons of which 50 per cent. are red bangles. You take that as a fair estimate of expenditure?

Mr. Gangaprasad.—Yes.

Mr. Singhanian.—Rs. 12,000 is the minimum figure that we have taken.

President.—I have seen as high a figure as Rs. 50,000.

Mr. Singhanian.—If the output is higher and if the proportion of selenium used is higher, then naturally the cost will be higher.

President.—I want you to tell me whether you consider it too high or too low. Supposing you were making only red bangles and I suggested that about 30 lbs. of selenium only per ton of glass you would use, would you consider that as an absurd?

Mr. Singhanian.—30 lbs. for 27 maunds of glass?

President.—Do you consider that too high?

Mr. Singhanian.—It is too much.

Mr. Gangaprasad.—Some factories may not know the exact proportion and some factories may use it. The figure is not absurd.

President.—Would it be bright and brilliant colour?

Mr. Singhanian.—Yes.

President.—Better than the kind of colour which is in ordinary demand in the Indian markets?

Mr. Singhanian.—The Indian market is very difficult to judge. Some market wants very good nice things and some market wants the cheapest things. We can't say that it is an absolutely correct figure that the man has given.

President.—This is not a figure that I have got necessarily from an Indian manufacturer. It is simply a sort of standard figure I am putting forward as a basis for discussion.

Mr. Gangaprasad.—It may depend upon many things, The quality may be superior.

Mr. Singhanian.—If you make a thin bangle, you will have to use more selenium.

President.—The other most expensive chemical I find from your list of prices is Cadmium sulphide.

Mr. Singhanian.—Yes. The price given there is too high. It may be taken as 60 cents. In the year which we took, the price was 75 cents.

President.—There is one point on which I should like you to give me your opinion. As regards bangles of various kinds, is there a strong preference in markets such as the big ports for any particular colour?

Mr. Singhanian.—The most important colours that are preferred are red and yellow. The Indian ladies want red bangles for certain religious cere-

monies. Therefore red and yellow are the most important colours which are generally preferred.

President.—And that is so in practically every part of the country?

Mr. Gangaprasad.—We think so.

President.—If I were trying, for example, to sell bangles exclusively in the Calcutta market, then, would it be necessary for me to put on the market a much larger proportion of red bangles than, say, any upcountry market?

Mr. Singhanian.—So it is in Madras. Everywhere it is practically the same. Madras is the biggest market for red bangles. In proportion to the other parts of the country, Madras wants a large quantity of red bangles.

President.—Supposing you have a manufacturer who is making bangles almost exclusively for one of these large ports like Calcutta, he has got dealers with whom he has had dealings for a long period and they are being sold exclusively in the Calcutta market. On the other hand there is a manufacturer whose relations are with dealers who sell, let us say, in rural markets in the United Provinces. In that case would the manufacturer who is making for the Calcutta market be making a larger proportion of red bangles?

Mr. Singhanian.—Highest.

President.—A considerably larger proportion?

Mr. Singhanian.—Yes.

Mr. Gangaprasad.—It won't make much difference whether we send it to Calcutta or to rural areas.

President.—Generally may we take it in the proportion of 50 per cent. red, 30 per cent. yellow and 20 per cent. other kinds for all markets in the country?

Mr. Gangaprasad.—Yes. Although we are not producing in that proportion, that will give you a fair idea.

President.—Have you got the most recent prices of Japanese bangles?

Mr. Gangaprasad.—You mean in the Bombay market?

President.—I want the most recent price that you can give in the markets in which your bangles come into competition with Japanese.

Mr. Singhanian.—So far as reshmi bangles are concerned, 1 anna 4 pies per dozen pairs.

President.—Is that the present wholesale market price?

Mr. Gangaprasad.—Yes.

President.—Did you get this information from Mr. Katrak?

Mr. Gangaprasad.—Yes, and we also enquired independently.

President.—Sometimes I have noticed variations in prices as between the principal markets in the country. That is why I put that question to you. Take the Ferozabad market. Japanese bangles are sold in the Ferozabad market, are they not?

Mr. Gangaprasad.—They are not reshmi bangles.

President.—Perhaps they are fancy bangles.

Mr. Gangaprasad.—These are the kinds of bangles (samples shown) which are sold in the Ferozabad market. They are not manufactured locally.

President.—So that if 1 anna 4 pies is the present price of Japanese bangles, then you realise 4½ pies?

Mr. Gangaprasad.—If you take the Bombay price of our bangles, it will be much more.

Mr. Rahimtoola.—The price of 1 anna 4 pies which you have given is the Bombay wholesale selling price?

Mr. Gangaprasad.—Yes, for imported bangles.

Mr. Rahimtoola.—As far as your place is concerned, these Japanese bangles do not go there?

Mr. Gangaprasad.—They don't.

Mr. Rahimtoola.—The Japanese bangles that go there are not the kinds that you manufacture?

Mr. Gangaprasad.—No, they are not.

Mr. Rahimtoola.—They are of a different kind?

Mr. Gangaprasad.—Yes.

President.—This (4½ pies) is the price that you get *ex-works* at Firozabad?

Mr. Gangaprasad.—Yes.

President.—People come and buy *reshmi* bangles at Firozabad for shipments to various parts of the country at that price. Therefore the net *ex-works* price that you get must represent a lower price in areas where you come directly into competition with the imported bangles and a higher price in areas where you don't come into competition?

Mr. Singhania.—We cannot reach the port markets.

President.—The point is this. Give me a market which is situated between Firozabad and Bombay. The distance from that place to Bombay and Firozabad must be the same.

Mr. Gangaprasad.—In that market, perhaps we may not be selling our bangles. As I have told you before, we only supply the local market. Our bangles are not sold at distant places. To such places bangles will be sent from Bombay. Because there is this competition from Bombay, we are unable to sell our bangles. Supposing we bring our bangles to Bombay, they will naturally be dearer than the imported bangles and so we cannot bring them here.

President.—If you paid freight on your bangles from Firozabad to Bombay, then at the price of 1 anna 4 pies you would not be able to cover your breakage and freight?

Mr. Gangaprasad.—No.

President.—Therefore you don't come to the Bombay market?

Mr. Gangaprasad.—Quite so.

President.—There are other markets in which the Japanese bangles do not sell because the *c.i.f.* price *plus* the duty and landing charges *plus* freight from Bombay to these markets will be higher than the price at which you are able to sell?

Mr. Gangaprasad.—Yes. Those markets are near Firozabad.

President.—Name one market?

Mr. Gangaprasad.—Delhi, Farukhabad, Bulundshahr, etc.

President.—Let us take Delhi. Supposing Japanese bangles came all the way to Delhi from Karachi or Bombay, what would the price be? Supposing the Bombay price is 1 anna 4 pies and somebody decided to put them in the Delhi market, including the freight what would the price be?

Mr. Gangaprasad.—I cannot tell you exactly.

President.—Give me an approximate figure.

Mr. Gangaprasad.—Rs. 2 per maund.

President.—What would the price be per dozen pairs?

Mr. Gangaprasad.—It would be about 2 annas.

President.—At what price do you sell in the Delhi market?

Mr. Gangaprasad.—4 or 5 pice. That does not include packing.

Mr. Singhania.—We have not given you the selling price. Including freight, our bangles would cost landed in Bombay 1 anna to 1 anna 3 pies. There of course no allowance has been made for breakage in transit.

Mr. Gangaprasad.—If we do packing in the same way as the importers do then our price would be 9 pice in the Delhi market. So, we cannot sell our bangles there also.

President.—Is there any internal competition amongst the manufacturers at Firozabad?

Mr. Gangaprasad.—We don't deny that there is internal competition, but it is not to any very great extent.

President.—You don't consider that as one of your difficulties?

Mr. Singhania.—That is not our main difficulty. The position is this. The difference in the prices realised by the various factories in Firozabad is due not only to the internal competition amongst the local manufacturers themselves but also due to the quality of the products turned out by different manufacturers. The manufacturer who turns out a good quality is always able to realise a better price than the one who does not.

Mr. Rahimtoola.—I would like to understand this point a little more clearly. We are now concentrating our efforts on reshmi bangles. Do I understand that there are various qualities in reshmi bangles at Firozabad which account for such a marked difference in price?

Mr. Gangaprasad.—Yes.

President.—Supposing you took 2" reshmi bangles, in that case would there be any difference in the prices quoted by different manufacturers?

Mr. Gangaprasad.—Yes, slightly.

Mr. Singhania.—In the case of reshmi bangles, the difference will be about a quarter of a pice.

Mr. Rahimtoola.—I would like to understand the position about the Delhi market which I have not been able to follow. My point is this. Indian bangles are sold in the Delhi market, with the kind of packing that you are doing at present and with the amount of breakages that you are allowing for, at 5 pice per dozen pairs and the imported bangles are sold there at 2 annas per dozen pairs including freight and other charges and yet people prefer these imported bangles as against your bangles?

Mr. Gangaprasad.—Yes, because they are better packed and also because they are slightly of a better quality.

Mr. Rahimtoola.—I will come to the question of packing later on. I am now talking of quality. Is the quality of the imported stuff superior to yours?

Mr. Gangaprasad.—Yes.

Mr. Rahimtoola.—That is why they prefer these bangles? I want to know whether there is any other reason for their preferring these imported bangles because the difference in price is so great. Even if you include the kind of packing that they do and allow for breakages, what will it come to in your case?

Mr. Gangaprasad.—It will come to a fairly large amount. If we pack our bangles in the same way as the Japanese do, then it will come to 9 pice or more.

Mr. Rahimtoola.—The point is this. The question about packing can only come in with the dealer?

Mr. Gangaprasad.—Also with the purchaser, because the purchaser will prefer the packed to unpacked materials.

Mr. Rahimtoola.—So, it is from the point of view of the consumer that packing is done in card board boxes?

Mr. Singhania.—Yes.

Mr. Rahimtoola.—Quite apart from the fancy bangles that he wishes to purchase, it is the fancy of the purchaser that has to be taken into consideration in regard to packing?

Mr. Singhania.—Yes. Good packing makes the bangles look better and therefore the purchaser would pay a little more if the bangles are well packed. That is one reason. Another reason is that our bangles are not

as superior as the Japanese bangles. The quality of the latter is better and the joining of bangles is also better. We are still far behind Japan so far as these things are concerned.

Mr. Gangaprasad.—At the same time I must say that our products are not very much inferior to theirs.

Mr. Rahimtoola.—Who is insisting on a particular kind of packing to be done?

Mr. Gangaprasad.—It is the dealer. He does that because the purchaser insists on it.

Mr. Rahimtoola.—You are selling your stuff to the dealers locally?

Mr. Gangaprasad.—Yes.

Mr. Rahimtoola.—You have given us to understand that you represent not only the manufacturers but also the dealers?

Mr. Gangaprasad.—Yes.

Mr. Rahimtoola.—The dealers are in Ferozabad?

Mr. Gangaprasad.—Yes.

Mr. Rahimtoola.—Where do you send your goods? You give them to the dealers and the dealers send them to the different parts of the country?

Mr. Gangaprasad.—Yes, that is how it is generally done.

Mr. Singhania.—Sometimes merchants from other parts of the country come and make direct purchases from us.

Mr. Rahimtoola.—What would be the percentage?

Mr. Singhania.—20 per cent.

Mr. Rahimtoola.—20 per cent. of the output of all the factories?

Mr. Singhania.—Yes. Sometimes you will find merchants coming from outstations for week-ends and purchasing five, ten, or fifteen rupees worth of goods from us direct.

Mr. Rahimtoola.—What is the object of your Association? Is it one of the objects of the Association to reduce competition amongst yourselves?

Mr. Gangaprasad.—The object is to have an organisation.

Mr. Rahimtoola.—The object is to make representation to Government?

Mr. Gangaprasad.—That is one of the objects.

Mr. Rahimtoola.—What is the chief object of the Association?

Mr. Gangaprasad.—To organise the industry.

Mr. Rahimtoola.—And to avoid rate war? That should be at least one of your objects.

Mr. Singhania.—It is generally on the same basis as the other Chambers in the country.

Mr. Rahimtoola.—The Chambers are on a very different footing from your Association. I am only telling you that one of the objects of your Association ought to be to avoid the rate war amongst yourselves as far as possible.

Mr. Singhania.—Yes, and to a certain extent we have succeeded, so far as reshmi bangles are concerned.

Mr. Rahimtoola.—I am confining myself to the two kinds of bangles that you make, viz., reshmi bangles and fancy bangles.

Mr. Singhania.—In those things there is not much competition amongst ourselves.

Mr. Gangaprasad.—There is a fair competition amongst ourselves.

Mr. Rahimtoola.—But not unfair competition?

Mr. Gangaprasad.—No.

Mr. Rahimtoola.—There is no unfair competition now?

Mr. Gangaprasad.—No.

Mr. Rahimtoola.—That is due partly to the efforts of your Association?

Mr. Gangaprasad.—Yes.

Mr. Rahimtoola.—A few minutes ago, you drew my attention to the pamphlet of the Railway Rates Advisory Committee. In that, it is stated that the development of the Glass Industry in Ferozabad was due to a certain understanding arrived at with Government?

Mr. Singhania.—I don't say it was an understanding; I don't say there was any contract between Government and the manufacturers. I say it was rather a sacred promise made to the manufacturers at that time by Government.

Mr. Rahimtoola.—Did they give any reasons why they did not carry out this policy?

Mr. Singhania.—No.

President.—Your chief complaint is regarding railway freight or about other things also?

Mr. Gangaprasad.—For the last three years we have been trying to draw the attention of the local Government to several things. We have been pressing for an expert: We have asked for scholarships to boys whom Government might select to send out of India to learn the work but Government has not paid any attention to our representations; perhaps Government thinks that much has already been done.

Mr. Rahimtoola.—You have not received any reply?

Mr. Gangaprasad.—No. We asked for some figures for the Tariff Board but these have not been supplied nor has the letter been acknowledged.

Mr. Rahimtoola.—Your principal grievance is that though the Indian Munitions Board gave every encouragement while the war lasted and the Government gave the assurance of taking steps to give scientific help to the industry in order to place it on a sound footing so as to enable it to face foreign competition, the promise has not been carried out?

Mr. Gangaprasad.—That is so.

Mr. Rahimtoola.—You say that other things being equal you would prefer a place near the sea for a factory, I suppose it is due to other considerations: one is the market and the other is the freight?

Mr. Gangaprasad.—Yes.

Mr. Rahimtoola.—You have given us the number of days that the various factories work and that is quite short of your requirements. Ordinary working days in a glass factory, as far as we understand, are 300. You have given your ordinary working days as 250. I think most of the days you don't work are due to holidays. What are the average number of holidays you enjoy?

Mr. Gangaprasad.—Fifty to 60 days. We can't avoid that as the labourers are illiterate persons and they insist on having it because they are accustomed to get it.

Mr. Rahimtoola.—I should like to understand a little about soda. What kind of soda ash do you use?

Mr. Singhania.—Some factories are using Magadi, but we are using Russian soda ash.

Mr. Rahimtoola.—You have tried Dhrangadra ash? As far as the quality of bangles is concerned is it equally good?

Mr. Gangaprasad.—It is not as good as the other soda.

President.—How do you compare the two qualities that you are using at present.

Mr. Gangaprasad.—Crescent is superior.

President.—How do you compare the soda ash that you were getting from Dhrangadra with the imported stuff?

Mr. Singhania.—The trouble is that we did not get the same amount of glass from the quantity point of view. The ash is lighter, therefore from the gravity point of view the quality is not so satisfactory. The quantity also is less. We cannot expect to get substantial quantities from Dhrangadra.

President.—Provided they are able to give you the quantity even if the quality is not satisfactory?

Mr. Gangaprasad.—So far they have confined their activities to their own side.

Mr. Rahimtoola.—The factory has at present closed down so the question of quantity is not so serious.

Mr. Gangaprasad.—The soda being of lower specific gravity the production of melted glass we get is less than when we use Magadi soda.

Mr. Rahimtoola.—The quality is good?

Mr. Gangaprasad.—The analysis is satisfactory, everything else is quite satisfactory except that this ash is lighter in gravity. We have 600 lbs. pots; if we have heavier soda ash we get 500 lbs. of melted glass out of it, but if it is lighter we get only 425 lbs. That means that our working costs go up.

Mr. Rahimtoola.—Working cost may go up as compared with the imported soda ash but the difference in price between the two is very considerable. Take the price of Crescent brand for instance.

Mr. Gangaprasad.—We are not using Crescent brand soda ash.

Mr. Rahimtoola.—You are using Magadi ash?

Mr. Gangaprasad.—Yes.

Mr. Rahimtoola.—You have given here the price f.o.r. Firozabad as Rs. 7-2. How would you compare that with the price of Dhrangadra soda ash?

Mr. Gangaprasad.—We are not buying any Dhrangadra soda now.

Mr. Rahimtoola.—Is it not a fact that when you were getting the stuff it was cheaper than the imported stuff?

Mr. Gangaprasad.—Their price was higher than that of the imported stuff.

Mr. Rahimtoola.—You are using your own pots?

Mr. Gangaprasad.—Yes, for block glass and reshmi bangles.

Mr. Rahimtoola.—How would you compare them with imported pots?

Mr. Gangaprasad.—We have never used imported pots.

Mr. Rahimtoola.—You have given the procedure of making pots in your answer to question 22. Is it due to any experience on your own part or did you receive any technical advice?

Mr. Gangaprasad.—It is entirely due to our own experience.

Mr. Rahimtoola.—Entirely due to your own experience without any guidance from anybody?

Mr. Gangaprasad.—One Japanese and one Austrian were employed for a short period and they manufactured some pots on the Firozabad side.

Mr. Rahimtoola.—It was due to their guidance that the Firozabad people were able to make their own pots successfully?

Mr. Gangaprasad.—Yes.

Mr. Rahimtoola.—You asked them to come over?

Mr. Gangaprasad.—There was a factory in Dehra Dun.

Mr. Rahimtoola.—Whose factory was that?

Mr. Gangaprasad.—I don't know. Firozabad was taking block glass from the Dehra Dun people. Then they failed and some people here who were their selling agents entered the glass trade and engaged the experts who were formerly engaged in Dehra Dun. They were in Firozabad for more than five years.

Mr. Rahimtoola.—In answer to question 27 you say "A beginning has been made to replace labour by automatic or semi-automatic machines". What is the expenditure that you have incurred up to now and how far have you progressed in this direction?

Mr. Gangaprasad.—We are now using semi-automatic process. We are now using spirals. It doesn't cost much to instal machinery like that. We are now cutting bangles for decoration by machine.

Mr. Rahimtoola.—How many people did you displace by machinery?

Mr. Gangaprasad.—I can't give figures like that because those whom we displaced were all absorbed in the factory as they extended.

Mr. Rahimtoola.—In answer to question 47 you say that you have made no effort to send your bangles to Africa, Persia, Ceylon and other places. Is there any difficulty in doing it or did you not think it out at all?

Mr. Gangaprasad.—No. There is still ample market for expansion in India itself.

Mr. Rahimtoola.—And you have, therefore, not devoted your attention to that side of the market yet because you are able to dispose of whatever you produce in the Indian market?

Mr. Gangaprasad.—No serious effort has been made to enter other markets yet.

Mr. Rahimtoola.—From your point of view I understand there is enough market at present in India for you if you directed your attention to the expansion of your own factory's output so that there has not been any occasion to think about this?

Mr. Gangaprasad.—The fact is that if we cannot even compete in India we can't possibly compete outside India. We presume that there must be competition elsewhere when there is competition in places like Delhi and other places which are only 150 miles from our factory.

Mr. Rahimtoola.—But the fact remains that you have not given any thought to this aspect of the business?

Mr. Gangaprasad.—That is so.

Mr. Rahimtoola.—Then you have no serious difficulty about the market?

Mr. Singhanian.—Unless there is serious difficulty why should we approach the Board!

May I be permitted to bring to the notice of the Board how we are handicapped for want of assistance from the Government? Once I enquired of the Director General of Commercial Intelligence about the selling price of soda ash in different countries where glass is manufactured and the reply that came was that "this department is only concerned with the Indian export trade".

President.—How long ago was that?

Mr. Singhanian.—It was about 8 or 9 months ago. We had to quote facts and figures and we could not get the information from the Government department concerned.

Mr. Gangaprasad.—We have not placed before the Board our complaints against the Government. It would have needed a whole volume for that.

Mr. Rahimtoola.—You have given enough indication in your statement as to what the position is.

Mr. Gangaprasad.—Thank you very much!

Mr. Rahimtoola.—You have complained about the humidity. Is that one of the drawbacks you have found in your factory?

Mr. Gangaprasad.—Not very much.

Mr. Rahimtoola.—Is that one of the inherent difficulties in the factories in India?

Mr. Gangaprasad.—Yes.

Mr. Singhanian.—I don't know anything about conditions in other countries.

Mr. Rahimtoola.—I am talking of India, not about foreign countries.

Mr. Gangaprasad.—We don't know anything about foreign countries.

Mr. Rahimtoola.—I am talking of India. According to your opinion humidity is a drawback in your factory for making bangles.

Mr. Gangaprasad.—Yes, unless there is an arrangement for avoiding humidity.

Mr. Rahimtoola.—You are talking about the foreigner getting suitable materials.

Mr. Gangaprasad.—Yes.

Mr. Rahimtoola.—I would like to know what the position is.

Mr. Singhania.—They get superior materials. We have their analysis of sand. It will be seen from that their sand is of a very much superior quality. Then again they are better situated so far as soda ash is concerned.

Mr. Rahimtoola.—They have selected a site near the raw materials.

Mr. Singhania.—In Belgium the factories will be able to get their soda ash from a distance of about 2 miles only. They are naturally well situated from that point of view.

President.—They pay Rs. 14 for their coal. ✓

Mr. Singhania.—It is a better quality of coal.

Mr. Rahimtoola.—You say in the crude system the breakage is 5 per cent. only as compared with 35 per cent. and 25 per cent. for reshmi and fancy bangles. Is it due to the strong kind of bangles that they produce?

Mr. Gangaprasad.—Yes partly due to that and partly due to the fact that they have not got to submit their glass to the various subsequent processes which we have to do.

Mr. Rahimtoola.—They take the block glass from you and make the bangles.

Mr. Gangaprasad.—Yes. There is not much chance for breakage. It is comparatively thicker and more strong.

Mr. Rahimtoola.—They send it also outside Ferozabad?

Mr. Gangaprasad.—Yes.

Mr. Rahimtoola.—Even in transit there is very little breakage?

Mr. Gangaprasad.—It is very thick compared to reshmi bangles.

Mr. Rahimtoola.—I want to know out of the 5 per cent. what do you account for breakage in transit?

Mr. Gangaprasad.—The breakage is in the course of our preparation.

Mr. Rahimtoola.—5 per cent. in the course of manufacture?

Mr. Gangaprasad.—Yes.

Mr. Rahimtoola.—You are asking for 50 per cent. *ad valorem* duty for all bangles?

Mr. Gangaprasad.—We leave it to the Board.

Mr. Rahimtoola.—I am talking from your point of view.

Mr. Singhania.—We want 50 per cent. *ad valorem* duty provided that the chemicals that we use in glass manufacture are exempted from duty.

Mr. Rahimtoola.—I am coming to that. You have not taken into consideration the present price of chemicals. If you did that, it would be more than 50 per cent.

Mr. Singhania.—Yes.

Mr. Rahimtoola.—Can you tell me exactly the period for which you want this protection?

Mr. Gangaprasad.—I think there should be another enquiry after 10 years.

Mr. Rahimtoola.—You want protection for 10 years.

Mr. Gangaprasad.—We want protection without any period being mentioned, but only that an enquiry might be held after 10 years.

President.—Protection should be fixed without a period being mentioned. You mean after 10 years there should be an enquiry?

Mr. Gangaprasad.—Yes.

Mr. Rahimtoola.—At present your proposal is that protection should be granted for a period of 10 years.

Mr. Boag.—You said that you send a certain number of wagon loads of bangles to Madras. What is the kind of bangles?

Mr. Gangaprasad.—Thick bangles and also reshmi.

Mr. Boag.—I suppose there are a certain number of bangles imported into Madras?

Mr. Gangaprasad.—Yes.

Mr. Boag.—How do your bangles compare with them in price in the Madras market?

Mr. Gangaprasad.—So far as the thick bangles are concerned, they are very cheap.

Mr. Boag.—What about reshmi bangles?

Mr. Gangaprasad.—We don't send very much. If we send a full wagon load of thick bangles, we put in a small quantity of reshmi bangles. So there is no question of competition as regards reshmi bangles in that port.

Mr. Singhanian.—The most important market is for the common bangles (sample shown).

Mr. Boag.—Do they use common bangles?

Mr. Singhanian.—Yes.

Mr. Boag.—Is there any corresponding quality of bangles imported?

Mr. Singhanian.—Yes (sample shown).

Mr. Boag.—Is that an imported bangle?

Mr. Singhanian.—Yes. There is a great difference in quality and in price between these two.

Mr. Boag.—What is the difference in price taking the two common bangles?

Mr. Singhanian.—It is 7 annas as against 6 pice. The difference in quality is due to the difference in the quantity of selenium used in the two bangles.

Mr. Hodkin.—I have only two questions. One is the question of the materials. You say that you can only get your chemicals from America.

Mr. Singhanian.—Yes. Selenium is the product of America and no other country can compete with America.

Mr. Hodkin.—You mean with regard to price?

Mr. Singhanian.—Yes.

Mr. Hodkin.—The price that you gave for selenium is \$1.80.

Mr. Singhanian.—Yes.

President.—If you include the duty, it will work out to Rs. 8.66 per lb.

Mr. Singhanian.—It has cost us when we imported on the last occasion Rs. 9.2-0 at the exchange of 410 landed in Firozabad, including the octroi duty that I pay of one pice per rupee.

Mr. Hodkin.—It is Rs. 6 c.i.f. in Bombay.

Mr. Singhanian.—I shall be pleased to order any quantity.

Mr. Hodkin.—I can give you the figures and names of firms.

Mr. Singhanian.—Yes.

Mr. Hodkin.—And the same thing applies to your zinc oxide for which you pay £ 32.

Mr. Singhanian.—We can get it even for £ 15 per ton.

Mr. Hodkin.—You can get a good quality for £ 24.

Mr. Singhanian.—We can buy it provided there is no clay in it.

Mr. Hodkin.—If you analyse it, it would be 99.8 per cent. zinc oxide.

How much coal per day do you use on your glass furnaces?

Mr. Singhanian.—Roughly 100 to 110 maunds.

Mr. Hodkin.—On the reshmi bangles?

Mr. Singhanian.—22.

Mr. Hodkin.—How much coal do you use a day? Can you tell me approximately?

Mr. Singhanian.—You mean in the furnace itself?

Mr. Hodkin.—Just in the furnace.

Mr. Singhanian.—80 maunds. It may be a few maunds more or less.

Mr. Hodkin.—In the case of fancy bangles?

Mr. Singhanian.—There are different kinds of fancy bangles. Some have 8 pots and some 7 pots.

Mr. Hodkin.—Take 7 pots.

Mr. Singhanian.—100 maunds.

Mr. Hodkin.—In your rough bangles furnace how much coal do you use?

Mr. Singhanian.—I can't give you figures offhand.

Mr. Hodkin.—Do you use anything but coal? Do you use wood fuel?

Mr. Singhanian.—No.

President.—There is one little point on which I should like your assistance. Please look again at Form II. Can you tell me precisely how exactly the calculation is made? Take the case of crucibles under reshmi which you give as Rs. 600. What exactly is the cost of a crucible? For argument's sake let us take Rs. 40.

Mr. Singhanian.—Rs. 20.

President.—Dividing Rs. 600 by 20 you get 30 crucibles.

Mr. Singhanian.—Yes.

President.—30 crucibles have been consumed in the production of 350 tons of melted glass?

Mr. Singhanian.—Yes.

President.—That means roughly about 12 tons.

Mr. Singhanian.—Yes.

President.—How exactly do you arrive at that? It means that the amount of melted glass that you have got during the year out of one crucible is 12 tons.

Mr. Singhanian.—Yes. The position is this. Our furnace is charged. We put 7 pots. Each pot will last for 3 months.

Mr. Boag.—How much does it hold?

Mr. Singhanian.—7 maunds.

President.—It lasts about 3 months?

Mr. Singhanian.—Yes.

President.—How many times during the three months does it get refilled?

Mr. Singhanian.—You must allow something for breakages.

President.—Your period of 3 months is a little too long.

Mr. Gangaprasad.—In the meantime one or two pots may be replaced.

President.—Supposing we allowed 50 per cent. for breakages? You have 8 or 9 pots?

Mr. Gangaprasad.—7 pots.

President.—You have got 7 pots in the furnace which works continuously for three months. Of those 7 pots some get broken. Supposing on an average you take 4 pots working continuously for three months, would that be correct?

Mr. Gangaprasad.—That is too much.

President.—2½?

Mr. Gangaprasad.—Are we to give you the figures showing the breakages in pots in 3 months?

President.—You have given Rs. 600 as the expenditure on crucibles. I want to understand the whole thing. The first point that I want to put before you is whether Rs. 20 is the cost of one crucible.

Mr. Gangaprasad.—Yes.

President.—Rs. 600 represents 30 crucibles. How exactly does 30 crucibles come into this?

Mr. Gangaprasad.—These are the figures of a particular account in that period.

Mr. Singhania.—The labour cost incurred on the manufacture of crucibles has not been included in that.

President.—This is simply materials?

Mr. Singhania.—Yes.

President.—But then you have to account for 12 tons of melted glass as having come out of a single crucible during the year?

Mr. Gangaprasad.—We have only said that in the course of a year 30 pots are used in a furnace, having 7 pots.

President.—What is the capacity of a pot?

Mr. Gangaprasad.—7 maunds.

President.—Let us take it roughly at 600 lbs.

Mr. Gangaprasad.—Yes.

President.—600 lbs. is the capacity of a crucible and you have been able to get 12 tons of melted glass out of it in a year?

Mr. Gangaprasad.—Yes.

President.—12 tons is about 325 maunds?

Mr. Gangaprasad.—Yes.

President.—Would one crucible be able to yield 325 maunds?

Mr. Gangaprasad.—Yes, if it continued to work for a year.

President.—How many times do you fill?

Mr. Gangaprasad.—Every 24 hours.

President.—In 24 hours, is the whole process complete?

Mr. Singhania.—Yes.

President.—That is to say, 30 times you can fill the crucibles in a month?

Mr. Gangaprasad.—Yes, we do so.

Mr. Singhania.—We get melted glass in 24 hours.

President.—You complete the whole process of emptying and refilling in 24 hours?

Mr. Singhania.—Yes.

President.—If you are able to get so much service from a crucible in a month I find it difficult to explain this figure of Rs. 600. What do you consider to be the period of life of a crucible?

Mr. Gangaprasad.—2 months.

President.—As long as 2 months?

Mr. Gangaprasad.—Yes.

President.—What I want to know is this. The average life of a crucible is 2 months, is it not?

Mr. Gangaprasad.—Yes.

President.—If it is worked continuously it can be filled 30 times in a month?

Mr. Gangaprasad.—Yes.

President.—If both these things are accepted I can work out the rest. I take it that the capacity of a pot is about 600 lbs.?

Mr. Gangaprasad.—Yes.

The Upper India Glass Works, Ambala City.

A.—WRITTEN.

(1) *Letter No. 14263, dated the 18th December, 1931.*

With reference to your letter No. 666, dated the 16th November, 1931, we have pleasure in enclosing herewith seven copies of the replies to the questionnaire sent to us by the Board along with the above-quoted letter.

The price lists* mentioned in the replies are also enclosed herewith, and are not being sent separately as mentioned in the replies.

Besides the information contained in these replies the undersigned is prepared to tender oral evidence before the Board if they so desire. If the Board approve, we shall be pleased to know beforehand the dates and time which would suit the Board to record such evidence.

ANSWERS TO QUESTIONNAIRE REGARDING GLASS INDUSTRY, BY THE TARIFF BOARD, GOVERNMENT OF INDIA.

1. The factory is owned by a sole Proprietor, an Indian. But a scheme is under consideration to make the concern a limited one.

2. Need not be answered.

3. The factory has been working, though intermittently; for the last about thirty years.

4. About one hundred maunds of glass is produced per day.

5 (a). The factory manufactures generally hollow-ware, such as globes for lanterns and lamps, chimneys for lamps, tumblers, stoppered jars, cylinders, battery jars, and other hollow-ware as per two price lists 500 and 510, seven copies of each price list being sent under separate cover.

(b) These figures are confidential and cannot be given out.

6. The factory is situated at Ambala City, on the main line of the North Western Railway. This is a central place and commands the whole of the Punjab, including Sind Province, Baluchistan, and North-West Frontier Province; and the United Provinces of Agra and Oudh.

(a) Quartz-sand is brought from Jullundur district, a distance of about 150 miles. Packing materials can be had round the town in abundance, which is a great help in this industry. Firewood can be had in abundance locally.

(b) Coal is brought by rails from Bengal coal fields, a distance of about thousand miles; while firewood can be had abundantly in local areas.

(c) As regards markets for its manufactures, this factory enjoy a unique position. It is most centrally placed, and the important markets of the Punjab, Sind, Baluchistan, Karachi, North-West Frontier Province, and a good portion of the United Provinces of Agra and Oudh, are commanded by this factory. The only difficulty experienced by the factory, is the lack of sufficient finances to control all these very important markets.

(d) There is not much difficulty in getting trained labour, but the Factory Act, Section 23 thereof, prevents the employment of young boys under 12 years of age, and allows boys of 12 to 14 years with special permission. The circumstances of Glass Industry in India show that the art of Glass Industry can be best taught to boys of very young age. A representation was submitted by the proprietor of the factory in July, 1930, to His Excellency the Governor, Punjab, in this respect, but with no favourable result.

Another difficulty presented by the Factories Act is that the factory is not permitted to do its blowing work during the small hours of morning.

* Not printed.

which would seem an essential and humane concession to this industry when this work is to be done in summers in our country.

7. The most important factors while selecting the site for a glass factory in India would seem to be, (a) central situation, (b) facilities in getting raw materials, (c) facilities in getting abundant packing material at the least possible cost, and (d) a vicinity to important markets to send its products to.

8. Yes, to most extent. Although the absence of up-to-date machineries and appliances used freely in foreign countries makes much difference in this case. We admit our products do not command the same prices, the chief reasons being: (a) Lack of organisation among the Indian manufacturers and the consequent rate war among them, (b) general sense of prejudice against all country-made goods in this line, and (c) absence of encouragement to this industry by the Government and its departments, who almost invariably use foreign articles even when the same can be had from the Indian manufacturers, and (d) absence of protective measures on the side of the Government for this industry which is still in its infancy in India.

9. There are no such limited periods of production with us.

10. The raw materials used are: quartz-sand, lime, soda, borax, salt-peter, and a few chemicals; fire-clay, fire-bricks, crucibles and fire-blocks.

11. We have had no opportunities to collect these figures.

12. There are no such figures with us to give.

13. Coal is brought by rails from the Bengal Fields, a distance of about 1,000 miles; fire-bricks and fire-clay are brought by rails from Jubbulpore; crucibles are imported from Japan, quartz-sand is brought from Jullundur District, a distance of about 150 miles; borax and lime can be had almost locally; firewood is abundant round about the town; packing materials, such as reed and dry grass can be had abundantly in the vicinity of the town; soda and a few chemicals are imported from abroad as they cannot be had in India, though we purchase them from agents and do not import direct.

14. Raw materials are brought to the factory by rails, except packing materials that are brought from local areas by means of country carts.

15. The royalty is not paid directly by us, but the agents through whom we purchase pay it.

16. There are no such figures with us.

17. No such concessions are held by us.

18. Soda and chemicals are imported from abroad, through Indian agents; crucibles are imported from Japan. Customs Duty is paid by the supplying agents, and not directly by us.

19. Soda is an important material that can be easily manufactured in India provided the Government extends some help by way of subsidy to private enterprisers, and lending the free services of an expert in this direction. There was made one effort in this direction at Dhrangadhra in Kathiawar, and the factory there produced and supplied soda to many factories in India during this and last year, but it is heard that because of absence of requisite help from the Government, the factory has failed recently.

20. Yes, we find the material suitable. But we have no arrangements for laboratory work to give out analyses. Only during this month we have been informed by the Director of Industries, Punjab, that a laboratory has been opened at Lahore.

21. We cannot claim to possess information on this point.

22. We do not make our own crucibles, but import them from Japan. We do not know of the composition of these pots. We have no experience or knowledge as to what is the effect of transit journey on these pots, from Japan.

23. The refractory materials we use are satisfactory in the light that they are the only ones available to us under the present circumstances. But we know by experience that Austrian fire-clay and fire-bricks have more life. But they are too costly to be used by us. We have no knowledge of the composition of the refractory materials we use. The crucibles imported from Japan can withstand heat of our furnaces for about sixty days in the average, and the fire-bricks and fire-blocks from Jubbulpore have longer life, say twice as much in the average.

If there is help in this direction by the Government much can be done.

Labour.

24. As far as our own circumstances go we find that Indians who have had their experience in Indian factories, can well supervise the whole arrangements. But they do not possess theoretical and technical knowledge of the up-to-date modern type found in fully-equipped foreign factories that are much advanced in this direction than those in India.

If, however, modern machinery and appliances used in foreign countries are to be availed of by us, then it is necessary that expert supervision by foreign experts is availed of, at least to begin with.

25. Some years ago the glass blowers of this country had to be trained by foreign experts and blowers; but since a few years past we find no difficulty in this direction and at present all glass blowers working with us are Indian and they are working satisfactorily. But we experience much difficulty in training future blowers because of the hinderance presented by the Factories Act, which prevents the employment of small boys to train.

26. At present no facilities exist to train skilled workers, at least none in the Punjab Province. Some 20 years ago the Government of this Province had started a proposal to train students in the Glass Industry, but this proposal fell through when it was referred to the Government of India. It seemed the policy of the Central Government was against such arrangements of imparting up-to-date training to Indian students in this industry.

Yes, if the Indian labourers are given a chance to receive systematic training in technical line, they would improve much. The existence of Indian workers in all the Indian factories prove this.

27. Yes, there are stages in the process of manufacturing glassware of the sort we make, in which machinery can, and is used with much profit, such as blowing by means of mechanical presses and compressors. But this requires much capital, and individual efforts in this direction are not forthcoming because of the lack of sympathy by the Government, and also because of lack of capital required to make them an up-to-date concern as in foreign countries. Such efforts require much capital in the very experimental stages.

28. Absence of foreign expert advice and capital are the chief considerations in this respect.

29. We have no experience of other countries. But Austrians and Japanese who have worked before this time in this factory had very high opinion of Indian workmen in this industry under our climatic conditions in India. The difficulty is that the poor Indians do not get any chance to improve their work and experience; they are only labourers and no more.

30. (a) We are not prepared to give out this information.

(b) The average scale of pay is from Rs. 7 to Rs. 250 per mensem.

(c) We have been employing from 100 to 200 persons in the average as occasions required.

31. A great number of our labourers live in the town. Those workmen who do not reside in the town are given free quarters in the open and spacious grounds of the factory.

Sanitation conditions are good and medical help is allowed to them free whenever required. Increase in pay is allowed from time to time.

Power and Fuel.

32. Principal fuel used is coal and firewood, and both are available in sufficient quantities.

33. Coal is brought on rails from a distance of about 1,000 miles, from coal-fields in Bengal. The freight paid per ton of coal at present is between Rs. 9 and 10. But the Government have proposed to enhance the rate and we shall then have to pay between Rs. 11 and 12 per ton.

Firewood is purchased locally in any quantities.

34. Under present arrangements we have furnaces on Japanese type, and thus the coal is applied directly.

35. At present we have an oil engine, and we do not use steam and electricity. Its services are required in the last stages in which the glassware are to be finished.

36. The coal required per ton of melted glass is about one ton. For finishing glassware it is about 5 per cent. more.

Equipment.

37. Individually considered, we think our factory is large enough to ensure such economy. We cannot give a definite opinion as to the smallest unit of production to be run economically, as we have no requisite figures to arrive at such a conclusion. We are, however, making arrangements to run shortly 2 or 3 furnaces simultaneously, and we feel sure that our expenses would be minimised to much extent, as thereby we shall be lowering the rate of our over-head and organisation charges. Moreover we would be able to pay for a more systematic expert advice to supervise the whole organisation.

38. We have furnaces of Japanese design, annealing ovens of ordinary type, and grinding and neck-melting appliances driven by an oil engine. Blowing work is done by glass blowers and not by compressors, etc.

39. Yes, according to our individual circumstances and up to certain extent, we think we can fairly compete with foreign manufacturers, provided Government help and sympathy are also forthcoming. At present the Government have enhanced the duty on foreign glassware and this has helped the cause of Glass Manufacturers in India to some extent. But we think modern machinery and appliances would help us much, if there was capital to avail of.

40. No.

41. We have no first-hand information on the point, but we think that the policy of the Government towards this industry is not sympathetic, and there is experienced much difficulty with the Indian Railways too.

42. All appliances and machinery which we are using at present are Indian-made. But we have got some moulds and other appliances of Austrian-make as well, that were purchased many years ago and that are lying without being used.

Market and Foreign Competition.

43. We have no figures on this head.

44. This factory is situated in about the centre of India and it commands very important markets of the Punjab, the Sind, Baluchistan, North West Frontier Province and a great portion of the United Provinces of Agra and Oudh. Almost all the ports in India are at a distance of about a thousand miles from the factory. The markets in the Punjab and adjoining provinces mentioned above are in themselves most important of all, throughout the country.

45 (a). The present rates of railway freight over the North Western, Bombay, Baroda and Central India, East Indian, and Rohilkund and Kumaon Railways for glassware are as under:—

Glassware, Divisions C. and D., at II Class, O. R., the rate being .42 pie per maund per mile. This class includes tumblers, dishes, jars, globes, chimneys, etc.

But there are certain glassware, such as handis, fanus, etc., which the railways charge in N. O. C. VIII class, the rate for this class being 1.04 pies per maund per mile.

The rate on the Great Indian Peninsula Railway is higher, viz., IV class, R/R, and they have not allowed the concessional rate as done by other railways mentioned above.

We have, however, no advantage in this connection over the imported glassware in some respects; for example there is allowed rebate of railway freight by the North Western Railway, when foreign glassware are imported through Karachi port to be exported into Persia and adjacent countries, carried over the Nushki-Duzdap section of that Railway. We had approached this Railway with the request to allow the same rebate in case of our glassware when booked for export into Persia over the portion of that railway which may carry our glassware to that country, but our request was not granted.

(b) Railway freight is charged on gross weight, i.e., including the packing material. The normal ratio of nett weight to gross weight in our case is about half and half.

46. We have no definite information on this point. Perhaps the two rates are the same. But in one case cited in paragraph 45 (a) above, foreign glassware when imported through Karachi port for being exported into Persia have to pay a less rate of freight over North Western Railway. This is a preferential treatment.

47. Yes, it is possible to export glassware from India to foreign countries, such as Afghanistan, Tibet, Persia, Mesopotamia, through the Punjab, and to Straits Settlements through ports of Bombay, Calcutta, Madras, etc.

48. The competition comes from Japan and Austria-Germany. It is present in almost all the markets of this country, and in regard to glassware, bottles, tableware and lampware in very large quantities.

49-50. We have no figures to give this information.

51. There is no encouragement worth mentioning in this respect. There are very few and nominal purchases effected by the Railways and the Military Department, in our case only from the last two years. Telegraph and other departments of the Government who can very well purchase from Indian manufacturers do not do so but place their orders with foreign firms for foreign articles. We can compete very well in some of the hollow glassware that are used by the Government and Railways in very large quantities, and our prices are comparatively lower than what they pay for the foreign products; still we are not encouraged.

We have no figures as respects the glassware purchased annually by the Government, and Railways.

52. The Indian manufacturer is certainly at a disadvantage in respect of plant, machinery and appliances of up-to-date modern type; and perhaps in respect of railway freight and the cost of materials as well. We have no definite information on the last two points. The Indian manufacturer has to pay, though indirectly, more and heavy Customs Duty on soda and chemicals, and on crucibles, that are imported from abroad.

Foreign manufacturers possess more experienced and more fully-developed technical labour; they have large outputs and command up-to-date and thorough expert advice to back them. The poor and unexperienced Indians have to face a terrible competition in this respect, and they do not get any sort of encouragement or other help from the Govern-

ment. We do not think the present-day large and fully-equipped factories in foreign countries are the result of single enterprises unaided by the States concerned in some way or other. We understand that the Government in Japan gives out subsidies to factories, and that the glass industry flourishes there in the shape of cottage industry as well, in which case the Government takes it upon themselves to provide expert advice, free, and to purchase the products direct from the small concerns or families, working in this industry. We do not know whether there might exist some other kind of help, such as special rates of freight on the raw and manufactured material.

53. We have no experience or data on this point.

Capital.

54-56. We have no separate figures to give in this respect, but approximately, block value of the property related to the factory is about 2 lacs of rupees, while one lac in working capital. But we are making arrangements to enlarge the scope of this factory and also to turn it into a limited concern so that the output is increased manifold. For this purpose necessary statements are under preparation, and they are expected to be completed within a few months.

57-59. Need not be answered in our case.

60. A scheme of extension is under contemplation as stated in paragraph 54-56, and it is thought to lay out 2 to 3 lacs of rupees.

Works Cost and Overhead Charges.

61-63. Such information cannot be supplied by us, as they are our secrets.

64. The Income-tax Department of the Government is very unsympathetic towards this industry. Only last year depreciation was allowed to us in respect of machinery and buildings as coming under its general heads of assessment. This department cannot and does not possess any information regarding the refractory materials that are used in the furnaces, such as crucibles, blocks, etc., and on which depreciation should be allowed.

65. We regret this information cannot be given out.

66. We have only one office in the factory itself.

Claim for Protection.

67. We have not consulted the book under reference, and so are unable to give out the required information. But we can advance reasons and suggestions which we think proper in this connection, under three heads mentioned by you.

(a) All these conditions are fulfilled in most of the glass factories in India, and as far as it is consistent under the existing circumstances in this country. In India there is no dearth of raw materials of any kind that are required in this industry. There are enough materials to manufacture soda and potash necessary in this industry. Only there should be a sympathetic attitude on the part of the Government to facilitate means to develop the industry in India. As stated somewhere above there was started a factory to manufacture soda at Dhrangadhra in Kathiawar, but the effort failed for want of help and advice by the Government, and owing to the existence of foreign vested interests connected with the import of soda from foreign countries. The Government should appoint an expert who might help in the running of a fully-equipped factory to manufacture soda in India. As regards necessary funds, either the Government should invest themselves, or they should give facilities and invoke confidence in the minds of Indians to join the venture and thus start a factory in India. There might be engaged another expert who might travel from one factory to another and give them all, advice as to their furnaces, the manner of

controlling labour and items of loss in this industry on the basis of systematic conditions prevailing in modern factories in foreign countries. Such advices to several factories should be free of all charges except the travelling expenses of the expert which should be borne individually by each factory which is visited by him. Training Schools should be attached to each factory where the Government of the Province in which the factory is situated should appoint scholarships and send students in that factory to learn the art of glass manufacturing. The training should be conducted on such lines as to provide every opportunity to make glass experts of these students, though in various branches of the industry.

And then the Government should make arrangements to purchase all their requirements, as far as is possible for some time to come owing to the limited scope of production of glass articles in India; because there are some branches of industry and some classes of glass articles which it will take many years before they are produced in such factories in India. This part of concession on the part of the Government, viz., purchase of glassware from Indian factories, should be started forthwith as there are many kinds of glassware which the Indian factories are in a position to supply to the Government in competition with foreign firms, and they will find that Indian glassware are not inferior in quality to foreign and exported ones. This was proved during the war days when the Government departments purchased all their requirements from Indian factories with full satisfaction.

State Railways should also help us in this connection. The freight rates on soda, refractory materials and chemicals should be reduced. Rates for raw materials and manufactured goods should be made uniform on all Railways in India, and preferential treatment should not be allowed to foreign goods such as exists in the North Western Railway for exports to Persia side. The freight rate on coal is already high and still the Government have decided to raise it further.

Customs Duty on imported soda, chemicals, and refractory materials is too high. The duty should either be lowered, or a rebate allowed after it has been realised.

In our opinion, and considering the very backward state in which the Glass Industry in India exists at present, the Railways should grant such concessional freight rates for the requisite raw materials and manufactured goods as exist and are allowed in the case of wheat.

(b) Yes, in our opinion the Glass Industry in India would not develop as rapidly as is desirable in the interests of the country. In India itself the markets for this class of industry are vast, and no one can say a word against us on this point.

The fact that many factories have so far been started in India but very few had the opportunity to drag their miserable existence through these long years will itself prove that protection is very necessary. If proper enquiries are made by the Government, they will find that too many glass factories have to close down for one reason or the other during the last 30 or 40 years. The other fact which should invite the attention of the Government is the backward condition of all glass factories that are running in India, when their conditions are compared with those in foreign countries. It cannot be said that there are no materials in India, and that there is dearth of capital to invest. It is only the sympathy of the Government that is needed most to bring this very important industry in level with flourishing conditions prevailing in foreign countries.

(c) No, we do not think that the Glass Industry in India would be able to face the world competition without protection, unless some miracle happens, such as the deterioration of foreign factories in the years to come. When one sees the magnitude of difference between the relative conditions prevailing in the factories in foreign countries, and those prevailing in our own where the sympathy of the Government is still to be invited in our cause, he feels very little hope.

(2) *Letter No. 751, dated the 21st December, 1931, from the Tariff Board to the Upper India Glass Works, Ambala City.*

I have the honour to acknowledge receipt of your letter No. 14263, dated the 18th December, 1931, together with its enclosures. I am directed to state that without details of costs your replies must necessarily be of little value to the Board. The Board will undertake to keep confidential any portion of your written replies that you may consider necessary at any rate until opportunity has been given to discuss the matter. I am therefore to ask you to send replies on these points as well as the two Forms duly filled up.

(3) *Letter No. 14617, dated the 30th December, 1931, from the Upper India Glass Works, Ambala City.*

We are in receipt of your letter No. 751, dated the 21st instant. In reply we have to say that we have no requisite figures and details to reply fully to all the questions. But we herewith enclose seven copies of a statement which shows the details of expenditure and sales for the two years 1929 and 1930. For previous year we have no correct figures available, the factory being started after many years towards the end of 1927, or practically speaking towards the early part of 1928. For the year which is closing, we have not collected figures as yet, but statements are under preparation as we stated before as we are thinking of turning the factory into a limited concern.

We, however, give here the average wages which we pay to different classes of workers:—

Blowers	Rs. 30 to 45 per mensem.
Helpers	Rs. 15 to 25 „
Bubble, etc., Boys	Rs. 7 to 13 „
Firemen	Rs. 16 to 35 „
Other labour	Rs. 7 to 15 „

We trust you will be able to glean information from these data which are the only ones which can be given with precision.

Enclosure.

Statement showing details under Separate Heads of Expenditure and Sales for the years 1929 and 1930.

	1929.	1930.
	Rs.	Rs.
Raw materials	18,454	22,105
Packing material	10,357	12,384
Repair of machinery	305	{ 230
		{ 132
Chemicals	535	541
Refractory material	8,434	5,267
Fuel account	16,062	19,877
Moulds	1,467	1,400
Advertisement	628	1,470
Repair of building	223	4,489
Salaries	21,999	29,242
Postage	819	856
Stationery	635	707
Travelling	1,164	1,163

	1929.	1930.
	Rs.	Rs.
Law charges	2,974	1,827
Commission	2,480	1,792
Interest	4,943	3,332
Bank commission	138	95
Lamp burners	699	473
Telephone	230	237
Miscellaneous	2,943	3,555
Total	95,489	1,11,174
Sale proceeds	99,548	1,10,210
Stock in hand—		
Raw materials	690	174
Chemicals	162	690
Fuel	850	2,970
Refractory	2,092	990
Packing	1,001	2,022
Glassware	1,791	2,578
Total	6,586	9,424

(4) *Letter dated the 9th February, 1932, from the Upper India Glass Works.*

In continuation of our letter No. 934, dated the 29th January, 1932, we have the honour to enclose herewith further replies along with several statements which we have been able to prepare from our books.

We fear we are unable to fill up your Form No. II, as we do not possess data for them.

These notes include a note regarding rebate allowed on goods carried on the railway for export to Persia and Afghanistan.

Enclosure.

(1) *Supplement to the replies to questionnaire issued by the Tariff Board, Government of India.*

5. (b) We have made up these figures for only two years, namely, 1930 and 1931, which are given below:—

	1930	1931
	(In doz.)	(In doz.)
Globes for various lanterns and lamps	76,124	76,946
Stoppered jars	9,157	9,591
Tumblers	1,831	4,700
Miscellaneous, e.g., dishes, jugs, handi, fanus, etc.	4,463	4,673
Total	91,575	95,910

16. We give below the cost delivered at the works of the chief raw materials:—

Sand at As. 5 per maund.

(a) We do not pay any royalty, the firm that supplies might be paying it.

(b) Same as in (a).

(c) Freight from Jaijon Doaba, North Western Railway, to Ambala City, is As. 1-8 per maund.

(d) About Rs. 10 are incurred at Ambala City up to the time the material is placed in the stores, for each wagon containing about 400 maunds of sand.

Soda at Rs. 6-10 or Rs. 6-12 per cwt.

(a) The supplying firm pays it.

(b) Same as (a).

(c) About As. 14 per maund, from Calcutta to Ambala City.

(d) About Rs. 10 per wagon, containing 220 bags of 1 cwt. each.

Lime at Re. 1 per maund, had at the Works by local purchase.

Saltpeter at Rs. 6 per maund, delivered at the Works, purchased almost locally.

Borax at Rs. 12-8 to Rs. 14 per maund.

(a) The supplying firms pay it.

(b) Same as (a).

(c) About As. 10 per maund when purchased from Ram Nagar, Naini Tal District.

About As. 2 per maund when purchased from Jagadhri, Ambala District.

(d) About 9 pies per maund from Ambala City Station to the Works.

Coal at Rs. 4 to Rs. 5 per ton at the Colliery.

(a) The Colliery Proprietors pay it.

(b) Same as (a).

(c) Rs. 11 to 12 per ton under the present enhanced rates, and at Rs. 9 to 10 before this.

(d) About Rs. 10 per wagon, up to the stacking in the premises, and about 10 per cent. shortage, etc.

Refractory Material.

Fire-bricks and Fire-clay.—Fire-bricks purchased from Jubbulpore, Central Provinces, at Rs. 6 per hundred; Fire-clay, from Jubbulpore, at Rs. 25 per ton.

(a) The supplying firm pays it.

(b) Same as (a).

(c) About As. 13 per maund from Jubbulpore to Ambala City, in wagon-loads and on the capacity of the wagon.

(d) About Rs. 10 per wagon up to the Works premises.

Crucibles.—Imported from Japan, through Calcutta agents. From last year we have been using 800 lbs. capacity crucibles, of Shoseikwan make generally. The last price we paid for them is Rs. 63-12 per pot. The price oscillates with the exchange.

(a) & (b) We do not pay anything.

(c) About Rs. 2-14 per maund from Calcutta to Ambala City.

(d) About Rs. 10 for one wagon of 25 or 30 crucibles.

30. We give below these figures for the year 1930:—

	Rs.
(a) Works labour	20,692
Supervision and Office Establishment	8,100
Total	28,792

(b) Blowers	Rs. 30 to 50 per mensem.
Assistants	Rs. 7 to 25 „ „
Engine Driver	Rs. 28 „ „
Carpenter	Rs. 33 „ „
Firemen	Rs. 16 to 35 „ „
Others	Rs. 12 to 15 „ „

(c) About 128 persons a day in the average.

61. Form I is given herewith as under:—

	Year 1929.
	Rs.
I.—Raw materials—	
(a) Sand	3,300
(b) Soda ash	11,300
(c) Lime	264
(d) Saltpeter	2,200
(e) Borax	700
(f) Crucibles	5,442
(g) Fire-bricks and fire-clay	900
(h) Chemicals, etc.	373
II.—Works labour	15,699
III.—Power and fuel	15,212
IV.—Supervision and Office Establishment	6,000
V.—Repairs to Machinery and Buildings	528
VI.—Packing materials	9,356
VII.—Selling expenses—	
Travelling	1,164
Commission to Agents	2,480
Salary to Agents	300
VIII.—Miscellaneous, e.g.:—	
Stationery	635
Rent of land	400
Income-tax	179
Interest	4,943
Moulds	1,467
Advertisement	628
Postage	819
Law charges	2,974
Banks commission	138
Lamp burners	699
Telephone	230
Construction of Well	694
Others	2,364
Total	<u>91,388</u>

	Year 1930.
	Rs.
I.—Raw materials—	
(a) Sand	3,600
(b) Soda ash	13,800
(c) Lime	450
(d) Saltpeter	2,630
(e) Borax	950
(f) Crucibles	4,177
(g) Fire-bricks and Fire-clay	100
(h) Chemicals, etc.	351
II.—Works labour	20,692
III.—Power and fuel	16,907
IV.—Supervision and Office Establishment	8,100
V.—Repairs to Machinery and Building	362
VI.—Packing material	4,439
VII.—Selling expenses—	
Travelling	1,163
Commission to Agents	1,792
Salary to Agents	450
VIII.—Miscellaneous, <i>e.g.</i> :—	
Stationery	707
Rent of land	400
Income-tax	615
Interest	3,332
Moulds	1,400
Advertisement	1,470
Postage	856
Law charges	1,827
Banks commission	95
Lamp burners	473
Telephone	237
Others	2,540
Total	1,04,327

As for Form II, we have to write that there are no such datas as to fill up this form.

62. Percentage of wastage in each stage is as under. This is mostly breakage at various stages.

	Per cent.
Up to the time the glassware are put in the annealing ovens	10
In the annealing ovens, and before the goods are given in cutting branch	10
During the process of cutting	15
On the machine or grinding wheel	10
During selection and wrapping, and before articles are finally packed for despatch	5

63. We are unable to supply this information as the Form II is not possible for us to fill up.

- (2) *Note regarding rebate allowed on freight by the railway on goods, booked from Karachi on the Nushki Duzdap Section for export to Persia and Afghanistan.*

We possess the following information received from the Agent, North Western Railway, Lahore, as per his letter No. 2441-R., dated the 26th March, 1930, in reply to our letter No. 3457, dated the 12th March, 1930, addressed to the said official:—

“EXTRACT PARAGRAPH 1, PAGE 491, OF GOODS TARIFF, PAMPHLET I (No. 45).

1. Rebate on Persian and Afghanistan Traffic—

(a) Traffic on which rebate is allowed—

All goods traffic (including live stock) except coal—

- (i) booked to or from Duzdap and Mirjawa;
- (iv) booked to stations on the Nushki-Duzdap Section, for export to Afghanistan;
- (v) booked to Nok-Kundi and Dalbandin, for export to Persia.

(b) Amount of rebate admissible—

Rebate is admissible only in cases in which the gross freight charge on a consignment is not less than Rs. 5, and will be allowed on the following basis:—

- (i) Over the East Indian Railway (including the Oudh and Rohilkhand Section), Bombay, Baroda and Central India Railway (in bookings from Bombay only) and Jodhpur Railway (in bookings from Bombay, *via* Marwar Railway Junction and Hyderabad, Sind, only), at one-third of the freight charge;
- (ii) Over the North Western Railway (excluding the Nushki-Duzdap Section) at two-thirds of the freight charge.”

The Agent, North Western Railway, in his letter No. 2441-R./96, dated the 10th April, 1930, informed us that “the rebate on Afghanistan traffic is allowed only when it is booked to stations detailed in the cutting sent under his letter No. 2441-R., dated the 26th March, 1930, and it is not admissible on traffic booked to Jamrud or Peshawar”. He also informed us that the rate of freight on our goods from Ambala City to Duzdap was Rs. 3-7-5 per maund, O.R.

THE UPPER INDIA GLASS WORKS.

B.—ORAL.

Evidence of Rai Bahadur PANNA LAL, recorded at Bombay, on Wednesday, the 13th January, 1932.

President.—Rai Bahadur, you represent the upper India Glass Works?

Rai Bahadur.—Yes.

President.—I see from your replies that the works have been in existence for about 30 years.

Rai Bahadur.—A little more than that.

President.—All this time it has been under your proprietorship?

Rai Bahadur.—No. Before that for some time it was a Limited Company. After that the company was sold to another gentleman who worked for a few days and then I took it over.

President.—For how many years have you been the proprietor?

Rai Bahadur.—Since 1902 or 1903.

President.—You say a scheme is under consideration to make the concern a Limited Company?

Rai Bahadur.—Yes.

President.—What progress have you made with this scheme?

Rai Bahadur.—As a result of the industrial development of the country and other things I want to put in additional plant and increase the capacity and therefore I have decided to make it into a private limited company with increased capital and also take some more men into the management. From my experience I find that management is the most difficult problem. To run the industry economically we require efficient management.

President.—You mean not only managing ability but also technical knowledge?

Rai Bahadur.—Yes; also skilled labour.

President.—Is it your idea in connection with this proposed limited liability company to manufacture new classes of glassware?

Rai Bahadur.—A few things. My main object is to make table glass blownware and not sheet glass because there is already overproduction of sheet glass in India, as far as I understand.

President.—Are you proposing to instal any new plant?

Rai Bahadur.—Yes.

President.—What sort of plant are you considering?

Rai Bahadur.—I hear some new plant have come into the market but they are very expensive.

President.—Are you thinking of a tank furnace?

Rai Bahadur.—I am against a tank furnace for India at present.

President.—The manufacture would be confined to blownware and pressed ware?

Rai Bahadur.—And also tableware.

President.—And as far as possible you would introduce automatic machinery?

Rai Bahadur.—Yes, if I think it is profitable.

President.—In reply to question 4 you say about 100 maunds of glass is produced per day: is that the rate at which you are producing now?

Rai Bahadur.—Yes.

President.—That works out to about 3½ to 4 tons a day?

Rai Bahadur.—At the time of writing we were making about 100 maunds. Last week I have increased my capacity and it is now about 200 maunds a day. At that time we had only one furnace and now we have two furnaces working.

President.—Since you sent in these replies to the questionnaire you have sent us your statement of expenditure. The statement relating to the year 1930, is that based on an output of 100 maunds?

Rai Bahadur.—No.

President.—What is the rate of output?

Rai Bahadur.—In 1928 I had only 6 pots of 400 lbs. each and after that 600 lbs., then after that 800 lbs. and that way I increased the output.

President.—I suppose you are not in a position to determine accurately the total output of the year in terms of maunds of glass?

Rai Bahadur.—I can't say because I don't keep accounts in that way.

President.—This statement that you give here is the only sort you can prepare from your accounts?

Rai Bahadur.—Yes.

President.—I should like to know clearly what the position is. The first communication that we received from you was to the effect that you do not desire to apply for protection. Is that still your position?

Rai Bahadur.—My position is this: I have been corresponding with Government since 1907. If Government thinks that protection should be given.....

Mr. Rahimtoola.—The question is, are you prepared to revise your opinion which you then held regarding protection?

Rai Bahadur.—I want protection.

President.—You are an applicant for protection?

Rai Bahadur.—Yes.

President.—What is the rate of protective duty that you want?

Rai Bahadur.—100 per cent.

President.—On what do you base that? The rate of protective duty ought to be such as would adequately protect the Indian industry. You agree to that?

Rai Bahadur.—Yes.

President.—You can't determine the measure of protection unless you find out the difference between a fair price for the Indian industry and the prices at which imported goods are being landed. I should like to know with regard to the position of your industry what precisely you consider a fair return per unit of glass for your industry.

Rai Bahadur.—First of all, Government officials are prejudiced against our industry.....

President.—The point is this: no applicant for protection can expect a rate of duty to be proposed by the Tariff Board unless he is in a position to give facts with reference to which the rate can be determined and my position is that you have refused to supply the facts.

Rai Bahadur.—At present that is all that we can give.

President.—I suppose you are aware that if the Board considers that any assistance required by the Glass industry should either wholly or partly be given in the form of direct assistance, that is to say by subsidy to the Glass industry, the practice of the Board in the past has been in such cases to propose that direct assistance of that kind should be withheld from industries which refuse to co-operate in the enquiry. I take it from the attitude that you have expressed before us this morning that you are prepared to take that risk?

Rai Bahadur.—It comes to that.

President.—What are the principal classes of glassware on which you feel that a 100 per cent. duty should be imposed?

Rai Bahadur.—Tableware and chimneys and globes, and glass jars used by the Telegraph Department for batteries, things we are manufacturing at present, and also shades for electric bulbs.

President.—How much of these things do you make?

Rai Bahadur.—Altogether we made last year.....

President.—What quantities of globes and chimneys do you make?

Rai Bahadur.—About 500 dozen a day.

President.—Globes and chimneys?

Rai Bahadur.—All sorts of things. We make 500 dozen a day of globes, chimneys and battery jars.

President.—Will you be able to give me separate figures for globes and chimneys?

Rai Bahadur.—No; we have not got separate accounts.

President.—Taking all the glassware that you make, the various pieces number about 500 dozen a day?

Rai Bahadur.—Yes.

President.—Approximately would that 500 dozen correspond to 100 maunds a day?

Rai Bahadur.—Yes.

President.—Although you have not given us any information in your replies to the questionnaire of the kind on which we can base any proposals, there is one point with regard to which I find that you have given what appears to be fairly definite information and that is the quantity of coal which is consumed per unit of glass. If you look at your reply to question 36, you say the coal required per ton of melted glass is about one ton and finished glassware about 5 per cent. more.

Rai Bahadur.—Yes.

President.—That means that per unit of finished glassware corresponding to one ton of melted glass your consumption of coal is $1\frac{1}{8}$ of a ton?

Rai Bahadur.—Yes. We weigh the coal when it comes into the factory and we select and use it. The dust coal we sell and we sometimes get more and sometimes less.

President.—That is to say we may take this figure of 1 ton plus 5 per cent. and we have to add to that a quantity which corresponds to the amount of unusable stuff contained in the coal?

Rai Bahadur.—That is right.

President.—Does that represent the whole fuel consumption of your factory?

Rai Bahadur.—No. We also use wood fuel: that is about 10 maunds a day and we have also got an oil engine.

President.—What is your consumption of fuel oil?

Rai Bahadur.—It is very little at present, only about $1\frac{1}{2}$ gallons a day, all ordinary kerosine oil.

President.—I take it from the figures of freight on coal that you have given, that on your coal at present the freight comes to about Rs. 13 to Rs. 14 per ton?

Rai Bahadur.—About Rs. 15 to Rs. 16 according to railway receipt at Ambala Station, including cost of coal itself. But from the 15th January there is surcharge of 15 per cent. and about 10 per cent. will be shortage, loss in transit and grading, which applies before 15th January also.

President.—Approximately we may take it at Rs. 15 to Rs. 16 a ton?

Rai Bahadur.—Yes including cost of coal itself, and above this 15 per cent. from 15th January on railway freight alone.

President.—If you look at your reply to question 30 you say "borax and lime can be had locally".

Rai Bahadur.—That is so.

President.—Within what distance from your factory can you raise your lime and borax?

Rai Bahadur.—Within a distance of 100 miles. As regards borax as a matter of fact we have got that in our own district and we can also get it from Tibet: the refining is done in the district and we buy it from the refinery which is only about 30 miles from our works. Sometimes we get from Naini Tal side but that is seldom.

President.—You get your sand at Jullundar?

Rai Bahadur.—From Jaijon Doaba.

President.—That is about 150 miles from your factory?

Rai Bahadur.—About 120 miles.

President.—What freight do you pay on that?

Rai Bahadur.—We pay a concession rate of As. 1-8 per maund.

President.—What do you pay for the sand?

Rai Bahadur.—We are buying at about 5 annas per maund into the wagon.

President.—To that you have to add As. 1-8?

Rai Bahadur.—And also add 5 per cent. for contingency, tipping to babus and so on.

President.—What is the present price of soda?

Rai Bahadur.—Since the last fortnight the price has gone up to Rs. 6-12 delivered at Calcutta. They refuse to supply me Magadi soda from Karachi though Karachi is the nearest port for me. They have got a monopoly and I have got to buy it from Calcutta.

President.—Can you get other kinds of soda from Karachi? Can you get the Crescent brand from Karachi?

Rai Bahadur.—Yes, but that is one rupee more costly than the Magadi.

President.—Would you consume a smaller quantity if you used that?

Rai Bahadur.—No.

President.—I suppose it is a light quality?

Rai Bahadur.—There is light quality as well as heavy quality. Heavy quality is good for this industry as far as I know. Light quality is not good for mixing with sand.

President.—What was the figure that you gave for soda in Calcutta?

Rai Bahadur.—Rs. 6-12.

President.—What is the freight from there to Ambala?

Rai Bahadur.—There are many things. Sometimes they charge As. 12-9 a maund and sometimes As. 13-11 a maund.

President.—What is the railway freight that you paid last?

Rai Bahadur.—About As. 13-11 a maund.

President.—How does this difference arise?

Rai Bahadur.—The difference arises in this way, as far as I am told. It is the clerks that do this. If my man were to go to the Calcutta port and give the clerk there Rs. 5 bakshish, then he would charge Rs. 50 less. But, if by any chance, I could not send a man and the Company were to send their representative, then the clerk would say that we should pay Rs. 50 more. If the clerk was told that last time the freight charged was less, he would simply say that the matter could be taken up to the higher authorities for refund, if necessary. When we begin to write for refund, they take their own time to reply even. The Great Indian Peninsula Railway people are not half as courteous as the East Indian Railway or the North Western Railway.

President.—What is the standard rate of freight?

Rai Bahadur.—About As. 14 at present.

President.—There is another important point that you raise in one of your replies. I am referring to question 8 in which you discuss the reason for the lower price which is fetched by Indian made glass and the first reason that you give is lack of organisation among the Indian manufacturers and the consequent rate war amongst them.

Rai Bahadur.—Yes.

President.—How long has this been going on?

Rai Bahadur.—The fact is this. As you know this industry is a very delicate industry. As far as I understand this competition amongst the Indian factories themselves started from the days of Sir James Meston, when his Government gave some encouragement in the shape of an advance of Rs. 2 or 3 lakhs to glass factories in the United Provinces and it is going on in an aggravated form for the last 3 years.

President.—The result of that has been, I suppose, a steady decline in the price realised by Indian factories.

Rai Bahadur.—Yes. It was Rs. 1-14 a dozen when we started.

President.—In 1927?

Rai Bahadur.—In 1927 or 1928, and now we are selling them almost for nothing.

President.—For practically nothing?

Rai Bahadur.—Yes because there has been such an intense competition in the country that some of the factories are unable to sell their goods. Some time back some factories proposed that railway freight should be paid by the factories and I representing the Upper India Glass Works say "All right". After some time they again come forward and say that they cannot sell their goods even after bearing the railway freight and so packing also should be paid free by the factories and I say that I have no objection. Then again they come forward and say that commission to the extent of 20 per cent. should be given to the agents. To that also I agree. If we are to go on like this, I do not know how much longer we can survive.

President.—Is it mainly with regard to chimneys and globes that you feel this competition?

Rai Bahadur.—Dietz globes and so on. These are the patent things. After that comes tumblers.

President.—With your 30 years' experience in this business you ought to be able to give us some information as to the real position in this matter. I find from the trade returns that we still import say not less than Rs. 12 lakhs worth of lampware and glass, so that obviously the production in the country is not sufficient to meet the needs of the country.

Rai Bahadur.—That is right.

President.—So that it is not a question of overproduction.

Rai Bahadur.—I agree, because even if there is overproduction, we have got export markets in Tibet, Afghanistan, Persia, Basra and Aden. To such places we can always send our goods. Therefore there is no question of overproduction.

President.—It is simply a lack of understanding of methods of business?

Rai Bahadur.—I quite agree. That is the reason I have said that the industry is not properly organised. Those who have proper organisation can sell direct to the customer.

President.—There is one point that needs to be cleared up. It may be that there is still a class of consumer in this country who prefers imported globes and chimneys.

Rai Bahadur.—No doubt they do. They only form a small number. It is very difficult for me to disclose the names of European firms who buy the stuff from us at 25 per cent. higher than the bazaar rate and get their own stamps on them. They are selling them in India saying that they are imported articles.

President.—If there is a class of consumer in this country who shows a strong preference for imported lampware, then it may be that the quantity produced in the country is more than will be taken by the rest of the consumers. In that sense possibly there is overproduction.

Rai Bahadur.—No, cheapness is the first thing which weighs with the customers. About 10 years ago the people had a great prejudice against Indian made goods. Now a days that prejudice is gradually disappearing, but I am sorry to say it persists with the Government officers.

President.—Don't you think that one of the remedies would be for glass factories such as yours to proceed to make other kinds of glassware than globes and chimneys which might relieve so to speak the strain on the market?

Rai Bahadur.—The difficulty is this. From my experience I can boldly say that we can make everything. We have wasted about Rs. 10 to Rs. 15 lakhs on experiments. The difficulty is only about skilled labour. If we get blowers once trained for the dietz and if we are to blow every day globes of the same pattern and of the same weight, then they will be able to turn out nicely and beautifully according to the grades we want. But if we change all the moulds or put their hands to a new job, they will naturally spoil them and will not be able to turn out proper qualities. Quality under such circumstances cannot be maintained.

President.—Is there not much demand in the part of the country that you represent for phials?

Rai Bahadur.—There is, but 15 years ago I commenced with phials and I stopped it because the price was unremunerative. We find we can make more money out of globes than phials.

President.—How long did you try?

Rai Bahadur.—For 6 years we tried.

President.—How long ago was this?

Rai Bahadur.—For 1903 to 1909. When we started we had Austrians. We tried it for 6 years.

President.—That was about 20 years ago?

Rai Bahadur.—Yes.

President.—Then your cost of manufacture of phials was not covered by the price that you got?

Rai Bahadur.—That is so. Another difficulty in those days was that we could not get blowers to make the necks for phials. They require three processes, whereas globes require only one process.

President.—In phials how many processes have you?

Rai Bahadur.—3 processes. We take moulds and then we blow into the moulds. Then we make the necks and now machinery has come in.

President.—I am speaking of hand system.

Rai Bahadur.—And then it has to be put into the annealing oven. After that proper cork has to be put inside. Sometimes the corks do not fit in properly.

President.—That is really connected with the process of neck manufacture?

Rai Bahadur.—Yes.

President.—That really is the difficulty.

Rai Bahadur.—That was the difficulty in those days. Boys were not properly trained. The four German people we had in those days could make 200 dozen daily. Our men after being trained could only produce 5 to 6 dozen. As regards necks 25 per cent. of the things they made were good and 75 per cent. bad. At that time we had Sir Louis Dane as our Lieutenant Governor. He said on the recommendation of Mr. Hamilton he would give scholarships for boys to get trained. He gave help for six months on the understanding that the Government of India would sanction the expenditure, but it was not given.

President.—Supposing the position now is that as the result of internal competition the prices that you realise on globes and chimneys hardly cover your expenditure, is not there some ground for reconsidering the question of phials in spite of the difficulties connected with manufacture?

Rai Bahadur.—At least I am not going to reconsider it.

President.—Anyway phials are not one of the articles which will be produced even under the proposed new scheme?

Rai Bahadur.—No.

President.—If you extended, it would be in the direction of tableware?

Rai Bahadur.—Or it would be in the direction of whisky bottles. On our side we have distilleries in Simla hills.

President.—You mean excise bottles?

Rai Bahadur.—Not ordinary excise bottles, but high class bottles for European trade. In Punjab there is a large consumption of hair oils.

President.—For that you would use phials?

Rai Bahadur.—No. We would use bigger bottles.

President.—What would be the capacity?

Rai Bahadur.—12 oz. They are saying 12 oz., but it is actually 10 oz.

President.—Are you actually proposing to make them?

Rai Bahadur.—No.

President.—Have you ever thought of making bottles?

Rai Bahadur.—Yes.

President.—How exactly do you propose to make tableware?

Rai Bahadur.—By a process of blowing and pressing.

President.—It would be mainly blownware?

Rai Bahadur.—Yes. During the last 30 years we have got all our men trained from top to bottom. They all come from Ambala only. We have not got one single hand from outside Ambala. When we had spent so much money from training men, why should we not take advantage of that?

President.—Do you think it is difficult for leading Indian manufacturers like yourself, by organisation, to stop this cut throat competition?

Rai Bahadur.—That will take some time. We have got three kinds of people who are interested in this industry.

President.—Who are they?

Rai Bahadur.—Public Limited Companies, Private Limited Companies and Proprietary Concerns.

President.—Supposing the business was confined to public companies, do you think it would be easier to bring about some kind of organisation?

Rai Bahadur.—The people in charge of the public companies are only interested in their own commission. We have considered and discussed many ways of organisation. We don't get big people to organise.

President.—You have tried to bring about some kind of organisation, have you?

Rai Bahadur.—Yes, we have tried something.

President.—So far you have not met with any success.

Rai Bahadur.—We have not succeeded because of this cut throat competition that is now going on. Now so far as we are concerned, we are selling at a good price part of our output in some places and lowering our prices in another place according as the circumstances require.

President.—I should like to ask you a question. You have been in public life and you have considerable business experience. Supposing the position was this that with regard to an important class of glassware, such as globes and chimneys, the lack of organisation in the industry makes it impossible for the industry to realise fair prices, is it any use giving a protective tariff?

Rai Bahadur.—Yes.

President.—Explain to me how.

Rai Bahadur.—This is only temporary. Within a year or so those who have no stamina will stop working.

President.—That will happen even without a protective duty.

Rai Bahadur.—First of all people with no organisation or skill will close down their factories. Of course it is difficult to say when this will happen. It may be after a few months or it may be after a year or two. After that, people with real capacity for business will come in. They will have to compete with foreign countries such as Japan, Austria and Bohemia. Then only we would get advantage.

President.—So that your position is in the first few years of protection there would be very little difference to the prices realised by Indian factories?

Rai Bahadur.—Quite so.

President.—During that period of transition the weaker manufacturers would be compelled to close down?

Rai Bahadur.—Some of them would close down.

President.—Then, the few who are left, who survive this period of transition, would be in a better mood for organisation?

Rai Bahadur.—Yes.

President.—The period of transition may be one year or ten years?

Rai Bahadur.—We can't say anything definite about that. But I don't think that it would take more than a year or so.

President.—So that if the weaker neighbours still continue, then protection would be completely ineffective?

Rai Bahadur.—Temporarily it would be ineffective.

President.—Now this reference that you make in your reply to question 26 about a proposal to train students, that was a proposal by the Punjab Government?

Rai Bahadur.—First we approached the Punjab Government and they failed to get the sanction of the Government of India. In the United Provinces, the local Government advanced money to their factories and also gave an Austrian technical expert to them who went round the factories from time to time. No serious attempt to impart training to students was ever made up till now.

President.—Is there a technical institute in which this training can be carried on?

Rai Bahadur.—None at all. In the Forman Christian College at Lahore the art of blowing is taught, but that is only for showing the way how to make a glass tube and not the commercial ware.

President.—I should like you to explain a little more clearly your point about the rebate on railway freight referred to by you in your reply to question 45. What precisely is the position?

Rai Bahadur.—The fact is this. I do not know the inside policy of Government. Whatever I am saying is all gathered from outside and from experience. About 15 years ago, we had such freight rates in India.....

President.—If you first state the present position and then explain the background, I should find it easier to follow. What is the present position?

Rai Bahadur.—The present position is this. When the Karachi people send their goods to Persia or Afghanistan via Quetta, they pay less freight for such a long distance, whereas if we send goods from Ambala to Persia or Afghanistan via Jamrud, we have to pay more though the distance is less by this route.

President.—Is it that on the glassware imported into Karachi and conveyed from Karachi to these foreign countries they are able to get a lower railway freight say per mile?

Rai Bahadur.—Not that.

President.—The freight is less for the whole distance?

Rai Bahadur.—Yes. They have a rebate system.

President.—On the quantity of glass landed at Karachi and conveyed from Karachi to foreign countries, they are able to get a rebate?

Rai Bahadur.—Yes.

President.—If it is meant for re-export, where does it go?

Rai Bahadur.—Duzdap, Mirjawa, and other stations on Nushki-Duzdap section.

President.—Where are they?

Rai Bahadur.—Beyond Quetta.

President.—If you take the distance from Karachi to border stations, what distance does that represent?

Rai Bahadur.—Approximately 1,100 miles.

President.—Do you know the freight they pay over the whole distance?

Rai Bahadur.—I cannot say off-hand.

President.—You don't know?

Rai Bahadur.—I know, but I have not got the information here.

President.—To what station do you send your goods, supposing you are exporting?

Rai Bahadur.—I send *via* Peshawar and Jamrud.

President.—Is Jamrud your border station?

Rai Bahadur.—Yes.

President.—What is the distance?

Rai Bahadur.—About 500 miles.

President.—Is it your contention that the total freight borne by your goods shipped from Ambala to this border station at a distance of 500 miles is higher than the freight over a distance of 1,200 miles from Karachi to Duzdap?

Rai Bahadur.—That is my contention. The Railway people tell us "If you like you can send your goods by that route". If we send our goods by that route, the distance is more. It will be about 1,300 miles. Even if we get the same rebate as is given to those who rail goods from Karachi to Duzdap, we will have to pay 25 to 30 per cent. more.

President.—Is it a rebate that is given?

Rai Bahadur.—A kind of rebate.

President.—Or is it simply a station to station rate?

Rai Bahadur.—No, it is not. The reason assigned for that lower rate of freight is that there is no traffic on that line. Therefore for encouraging traffic, they are quoting such a low rate. About 20 years ago, if we sent goods to Multan City, we had to pay more freight than the freight from Karachi to Simla. The excuse then given was that the wagons were coming empty from Karachi, and in order to attract traffic such a low rate was quoted.

President.—For these 400 miles your goods are charged at second class rate?

Rai Bahadur.—Yes, only for chimneys and globes.

President.—If you are paying more for 500 miles than they do for 1,200 miles, obviously the rate that they are charged must be considerably less than first class—I mean the net rate that they pay. The second class rate is .42 pie per maund per mile.

Rai Bahadur.—Something like that.

President.—If your rate for 500 miles is higher than their rate for 1,200 miles, probably the rate that they are charged is the minimum that is allowed under the Railway Rules.

Rai Bahadur.—The rebate that they give is 30 per cent. in some cases and as much as 40 per cent. in certain other cases. It is given on the production of a certificate to the effect that the goods are meant for Persia or Afghanistan.

President.—That won't bear out your contention. What I mean is this. If they allow a rebate of 25 to 30 per cent. on second class rate over a distance of 1,200 miles, still those people would pay more than you do.

Rai Bahadur.—No, they don't. I have calculated and found that they always pay less.

President.—Are you quite sure?

Rai Bahadur.—Yes.

President.—Could you send us a note on that?

Rai Bahadur.—I shall.

President.—You make some references in your replies to certain grievances you have in connection with the Factories Act. The administration of the Act is a concern of the local Government, is it not?

Rai Bahadur.—Yes, but the rules are framed by the Government of India.

Mr. Boag.—And certain rules are also made by the local Governments.

Rai Bahadur.—Yes, according to local circumstances. On that subject, I sent a representation to the local Government and they said that as it was a central subject they could not do anything in the matter.

President.—Your point is that you cannot admit into the works boys who are under 12?

Rai Bahadur.—Yes.

President.—But you can admit boys between 12 and 14 with special permission?

Rai Bahadur.—Permission is not required. Only a nominal certificate from a Civil Surgeon is required. After that, the question rests with us.

President.—I am on the question of age. At what age do you admit boys?

Rai Bahadur.—In my opinion, boys of 9 or 10 years will be suitable.

President.—You don't think that 12 is young enough?

Rai Bahadur.—Not for the Glass Industry.

President.—How many boys have you in the factory between 12 and 14?

Rai Bahadur.—Practically none. When we started, there was no Factories Act to be applied. At that time boys of 8 or 9 years were trained. They are now getting Rs. 50. Some of them have gone to other factories.

President.—How many hours do you work in a day?

Rai Bahadur.—8 hours.

President.—In those days?

Rai Bahadur.—Those boys were working in that way.

President.—How long were they actually inside the factory?

Rai Bahadur.—Those boys I was referring to attended not more than 4 to 5 hours a day according to their own leisure.

President.—What kind of work did you put them to?

Rai Bahadur.—To play with the moulds.

President.—A sort of kindergarten!

Rai Bahadur.—Then they were asked to do some small thing and by gradual training they became good workmen. In that connection, I may tell you we have a scheme. If you like to have a look at it, I can send you.

President.—What about the hours? Did you make any representation about working earlier hours during summer?

Rai Bahadur.—Yes, but we have no troubles now.

President.—You are able to do your work early morning?

Rai Bahadur.—There is no trouble about that. The only trouble is the one I referred to.

President.—You want boys under 12?

Rai Bahadur.—Only for training and not for other purposes. We cannot get proper labour afterwards if we don't employ boys of tender age.

President.—You make a reference to the Dhrangadra Soda Works. Have you actual experience of their soda?

Rai Bahadur.—Yes.

President.—What do you think of it?

Rai Bahadur.—The quality was good. Only they were not able to maintain the standard. Sometimes, the weight of the bag was less. But it was an infant industry. Owing to want of patronage and help from Government it failed.

President.—The quality was not uniform?

Rai Bahadur.—Yes. I do not know how far that is true. They only worked for two or three months I understand.

President.—What quantity did you take from Dhrangadra?

Rai Bahadur.—I took three lots continuously.

President.—You found the three wagons representing different qualities.

Rai Bahadur.—Not much difference in quality. If the industry went on working for a year or two, they would have understood our needs and requirements, and the quality would have improved.

President.—What kind of soda are you using?

Rai Bahadur.—Magadi or Russian, and seldom Crescent.

President.—How does the quality of Dhrangadra soda compare with those brands?

Rai Bahadur.—It is better than Magadi and Russian but slightly inferior to Crescent brand.

President.—What kind of price did you pay?

Rai Bahadur.—The Imperial Chemical Industries and the Haverro Trading Company began cutting down their prices as soon as we began taking soda from Dhrangadra.

President.—At the time you took soda from Dhrangadra the price was fixed in relation to the price of the imported stuff delivered at Ambala, was it not?

Rai Bahadur.—Yes. As soon as we got one wagon they at once began to reduce the price. They brought it down by about six annas per cwt.

President.—That is to say, at the end of this process of adjustment you got it 6 annas cheaper than when it started?

Rai Bahadur.—Yes.

President.—How long were the Dhrangadra people working altogether?

Rai Bahadur.—As far as I know, about six months or so. That was at the end of 1930 or beginning of 1931.

President.—Did you make any enquiries this year?

Rai Bahadur.—Yes, but they have not restarted. It is a Native State and no European Bank advances money for the development of this industry there. I saw the people of Imperial Chemical Industries and they frankly told me that they were going to take up the Dhrangadra concern. They have got enormous resources and they have bought out all the soda factories or secured management.

President.—The present tendency is for the soda price to go up?

Rai Bahadur.—Yes, because there is no competitor now. I may tell you in this connection that we have got lots of stuff in the Punjab and if the Board can recommend to the Government of India any means of helping the industry it can thrive in the Punjab and it is a product which is required not only for the Glass industry but for various other industries such as the paper and soap industry and so on.

President.—You have given us various reasons for the fact that your realised prices are lower than current import prices. Approximately on an average can you tell me by how much your prices are lower?

Rai Bahadur.—The price of American Dietz Junior at present in Bombay, Calcutta and other ports is about Rs. 24 per *peti* of 6 dozens.

President.—What is the Japanese price?

Rai Bahadur.—About Rs. 20.

President.—That Rs. 20 is landed duty paid price?

Rai Bahadur.—Yes at the ports.

President.—What price do you realise?

Rai Bahadur.—We realise at present about Rs. 12 for 9 dozens, that is about Rs. 1-4 a dozen.

President.—That is to say you get about Rs. 16 per gross?

Rai Bahadur.—Yes.

President.—It does not correspond with any figures I have seen so far. You are quite sure?

Rai Bahadur.—Only yesterday I sold some at that rate.

President.—Japanese figure is Rs. 20?

Rai Bahadur.—Yes. Ours is Rs. 16 and American Rs. 48 per gross.

President.—I take it that practically all over the country a difference of Rs. 4 may be taken between Japanese and Indian globes?

Rai Bahadur.—More than that. In Ambala our rate is about 14 annas a dozen; then there is commission, packing and railway freight.

President.—At the ports the difference between your price and the Japanese price is Rs. 4 a gross?

Rai Bahadur.—Yes.

President.—What is the freight from Ambala to Bombay?

Rai Bahadur.—About Rs. 2 a maund.

President.—Have you any idea what it works out to per gross?

Rai Bahadur.—About Rs. 2 for 9 dozen.

President.—Then Japanese globes, say, at Ambala ought to sell for about Rs. 22-8?

Rai Bahadur.—Yes; and they give some concession to the traders, discount and so on.

President.—What do the Japanese globes sell for at Ambala?

Rai Bahadur.—They don't sell at all.

President.—You are able to get a much better price at Bombay than at Ambala?

Rai Bahadur.—We get good price there too.

President.—If you are getting Rs. 10-8 per gross in Ambala as against Rs. 16 in Bombay it looks to me that even making allowance for freight to Bombay you are getting a better price in Bombay than in Ambala?

Rai Bahadur.—That is not always. We want to introduce our goods to people in the interior and therefore we are offering attractive prices at Ambala to meet competition from the ports.

President.—Ordinarily supposing you got Rs. 16 for your globes to Bombay what would you get at Ambala per gross?

Rai Bahadur.—About Rs. 10 per gross.

President.—You don't say that is a better price than Rs. 16 in Bombay?

Rai Bahadur.—I think that is better because we have to give discount here.

President.—What is the net price that you get?

Rai Bahadur.—15 per cent. off from Rs. 16 and then we have to send a man out here and pay all his expenses over this long distance and then selling agency and so on. That is 25 per cent.

President.—So that you get about Rs. 12?

Rai Bahadur.—Yes. On account of the duty prices have gone up in Bombay and therefore we get this at present.

Mr. Rahimtoola.—Rai Bahadur, you are a member of the Glass Manufacturers' Association?

Rai Bahadur.—Which Association do you mean?

Mr. Rahimtoola.—The one of which Mr. Varshnei is the President.

Rai Bahadur.—Yes, I am.

Mr. Boag.—How many associations are there?

Rai Bahadur.—Many; we have one on our side. In Bengal there is another association.

Mr. Rahimtoola.—On the 24th November, 1931, you wrote us a letter saying that the present duty of 25 per cent. was sufficient protection to your industry; do you still hold that view?

Rai Bahadur.—To a certain extent.

Mr. Rahimtoola.—Supposing we said that 25 per cent. duty should remain for a period of 8 or 10 years, will that be sufficient protection to the glass industry?

Rai Bahadur.—No.

Mr. Rahimtoola.—Then you wish to revise your opinion which you held on the 24th November?

Rai Bahadur.—I have not revised my opinion. We thought at that time that we might meet the fate which has overtaken the match industry, therefore we were afraid that the European manufacturer will come and swallow the Glass industry. I may tell you frankly that we looked upon Mr. Hodkin as a representative of a European firm so that his appointment as expert could only mean that he would collect information on behalf of his firm, and that is why we thought it prudent to withhold our figures.

Mr. Rahimtoola.—What you were afraid of was that some foreigner would take advantage of the protection which might be granted to the industry to establish a factory in India for the manufacture of glass. Was that your point?

Rai Bahadur.—Yes.

Mr. Rahimtoola.—And therefore you and others who thought in the same way were prepared to sacrifice the Glass industry for that reason?

Rai Bahadur.—We are not for sacrificing the industry but in the condition of the industry there is no alternative.

Mr. Rahimtoola.—Does it not come to this, that if you honestly thought that 25 per cent. was not sufficient protection for the Glass industry, you were still prepared to sacrifice the industry for the sake of this fear?

Rai Bahadur.—When we felt that everything was gradually going from us we thought it would be better to remain satisfied with what we have got.

Mr. Rahimtoola.—Was it not better for you to have asked for protection and request the Tariff Board to put in some clause or make some recommendation by which this fear could be obviated?

Rai Bahadur.—That is impossible.

Mr. Rahimtoola.—You thought it impossible and that is why you as a man with 30 years experience were prepared to sacrifice the industry?

Rai Bahadur.—As I said before we never thought of sacrificing the industry, but we could find no other alternative.

Mr. Rahimtoola.—You make a statement here that if protection is not granted to the Glass industry, the factories will have to close down. If that is your view do you still maintain that all the glass factories in India should be closed down for the mere fear that foreigners might take up your industry under the scheme of protection?

Rai Bahadur.—That was our fear.

Mr. Rahimtoola.—I suppose you are now getting rid of this fear and you are now asking for protection on a revised basis from 25 per cent. which at one time you thought sufficient for the industry?

Rai Bahadur.—Yes.

Mr. Rahimtoola.—As regards your membership of the Association, I should like to invite your attention to your answer to question 8. It is stated here that one of the chief reasons of our products bringing lower prices is the lack of organisation among the Indian manufacturers, etc. Is there any rule which enables you to discuss and arrive at a joint decision in your association?

Rai Bahadur.—There is no confidence in each other.

Mr. Rahimtoola.—Was there ever a resolution carried in your association to organize the industry in such a way amongst its members as to avoid rate war?

Rai Bahadur.—We tried it many times but it was not successful; sometimes non-members interfered so there was no chance of all manufacturers joining together.

Mr. Rahimtoola.—I am at present confining myself to the members of the Association. I want to know whether that resolution was carried to avoid this rate war.

Rai Bahadur.—Up to last March we have tried to increase the rate by one or two annas.

Mr. Rahimtoola.—Mr. Varshnei, we would like to be enlightened on this point whether there is a resolution in your Association to avoid this rate war.

Mr. Varshnei.—In almost all our annual gatherings, we do have resolutions of this sort and get them passed. I shall make the point a little clear. It is not the members who desire to go against the resolution. It happens like this: when new factories come up, those factories which are near to the new factories suffer most. The newcomer makes the man near to him suffer most by his attempt at underselling. Under such circumstances the factory which is suffering most feels it impossible to continue the membership and be bound by the resolution any longer. That has been the real cause.

Mr. Rahimtoola.—Are there many newcomers in the market in the shape of factories as against your membership?

Mr. Varshnei.—About 4 to 5. Out of this 3 have gone out of the market.

Mr. Rahimtoola.—How many members are there in your Association?

Mr. Varshnei.—12.

Mr. Rahimtoola.—12 members of your Association and 3 or 4 outsiders?

Mr. Varshnei.—Yes.

Mr. Rahimtoola.—3 or 4 outsiders are responsible for that? They have successfully met the resolution?

Mr. Varshnei.—They have successfully broken the resolution and I cannot say they have successfully met, because they are forced to close down. Ultimately they have been unsuccessful.

Mr. Rahimtoola.—At present there are no newcomers?

Mr. Varshnei.—There are two or three. Once there were 5 factories. Out of that 3 have closed down and two more have come again.

Mr. Rahimtoola.—In the statement that you have supplied to us you have stated that your expenditure in 1929 was Rs. 95,489 and your sale proceeds were Rs. 99,248. That means in that year you made a profit?

Rai Bahadur.—Yes.

Mr. Rahimtoola.—In 1930 your expenditure was Rs. 1,11,000 and your sale proceeds were Rs. 1,10,210. You made a loss of Rs. 900.

Rai Bahadur.—Yes.

Mr. Rahimtoola.—Are you in a position to give us the amount of tonnage that you turned out during 1930?

Rai Bahadur.—I haven't got that.

Mr. Rahimtoola.—How can you realise the price unless you know the number of tons sold?

Rai Bahadur.—We get whatever we receive.

Mr. Rahimtoola.—You receive because you sell.

Rai Bahadur.—Yes.

Mr. Rahimtoola.—I want to know what quantity you sold when you received this amount.

Rai Bahadur.—We cannot give it off hand.

Mr. Rahimtoola.—I would like to have this figure.

Rai Bahadur.—Yes. I have to tell you that we have so many charges to meet.

Mr. Rahimtoola.—Repairs and other things are all included in the statement of expenditure, are they?

Rai Bahadur.—Up to this time I have not given my accounts to anybody else. I have my own way. Some of the items are permanent expenditure.

Mr. Rahimtoola.—Just as you were able to tell us that your output is 200 maunds of glass, you would be in a position to tell us what was your output when the expenditure was this and your sale proceeds were so much.

Rai Bahadur.—Yes. I will give you figures for last year. I have constructed new buildings and charged to repairs.

President.—It was all in the statement of expenditure.

Rai Bahadur.—Yes.

Mr. Rahimtoola.—You have put in more items in the statement looking to the capital expenditure? That should be separated.

Rai Bahadur.—Yes.

Mr. Rahimtoola.—Everything that you have spent is contained in the statement?

Rai Bahadur.—That is right. Some are capital expenditure and some revenue expenditure.

Mr. Rahimtoola.—Will you tell me the details Rs. 3,000 under miscellaneous?

Rai Bahadur.—I will send you the details later on.

Mr. Rahimtoola.—There is one point on which I would like to have a little more information and it is as regards the rebate system in answer to question 45. I would like to know whether the rebate which is given to Government in the shape of tax is over and above this railway rebate or this is one and the same thing.

Rai Bahadur.—I don't follow you.

Mr. Rahimtoola.—At present we were informed that a Karachi dealer or an importer ships his goods, he has to pay 7½ per cent. less duty when the duty was 15 per cent., than one of the factories existing in India.

Rai Bahadur.—That is a separate thing. This is railway freight.

Mr. Rahimtoola.—This is, I understand, over and above the rebate or refund?

Rai Bahadur.—There are two items. One is railway freight paid by the rebate system by the North Western Railway and that is separate and then the customs duty is quite a different thing. Supposing goods are booked from Karachi to Kashmir, at Jammu they on the basis of a certificate from the customs get a refund of the customs duty on the spot. On the stuff that goes from Ambala, we have to pay customs duty according to the rebate. Instead of a refund, we have to pay duty on our goods.

Mr. Rahimtoola.—It amounts to this that the Indian industry suffers twice?

Rai Bahadur.—Yes.

Mr. Rahimtoola.—One is through the Customs authority and one is through the North Western Railway?

Rai Bahadur.—Yes. Those two things are separate.

President.—I am not quite clear about this. Supposing you send goods from Ambala to Jammu, have you got to pay any duty?

Rai Bahadur.—My customers who have to buy goods from us have to pay customs duty to the Jammu Government.

President.—At what rate?

Rai Bahadur.—I do not know the rate. Sometime before it was 15 per cent.

President.—That was charged on all goods entering the Jammu State?

Rai Bahadur.—All glasswares that go to Jammu paid 15 per cent. duty.

President.—Imported or made in India?

Rai Bahadur.—Only Indian made goods.

President.—Supposing imported goods go to Jammu, because goods imported into India are re-exported, they get a rebate.

Rai Bahadur.—They get a refund.

President.—They get a refund of half the duty.

Rai Bahadur.—As far as I know they get a refund of the full duty.

President.—As far as you know that refund is given under the ordinary customs rules?

Rai Bahadur.—Yes.

President.—When there is a re-export, you get a rebate to the extent of $\frac{1}{4}$ ths of the duty that you have paid.

Rai Bahadur.—Yes on the total amount.

President.—Imported glassware gets a remission of the whole or practically the whole of the import duty paid.

Rai Bahadur.—Yes.

President.—That refund comes from the British Government.

Rai Bahadur.—I don't know from which Government they get, but I know they get a refund on the spot.

President.—When the imported goods pass into Jammu, does the Jammu Government levy any duty on imported glassware?

Rai Bahadur.—They do.

President.—At the same rate at which they levy on your glass?

Rai Bahadur.—Sometimes more and sometimes less.

President.—With imported goods sold in British India you compete at a price corresponding to c.i.f. plus the full revenue duty. With imported goods sold in Kashmir you compete at a price corresponding to c.i.f. plus half the rate of duty or none or whatever is the remission. As far as the duty leviable by the Jammu Government it is the same in both cases.

Rai Bahadur.—Yes.

Mr. Rahimtoola.—You told us that the distance was 400 miles from Ambala as compared with their distance of 1,200 miles.

Rai Bahadur.—If we send direct *via* Peshawar, it is correct.

Mr. Rahimtoola.—And the other is 1,200.

Rai Bahadur.—About 1,100.

President.—You are going to give us a note on that question?

Rai Bahadur.—Yes.

Mr. Rahimtoola.—In the same question (b) you say that the normal ratio of nett weight to gross weight is half and half.

Rai Bahadur.—Yes.

Mr. Rahimtoola.—How much is packing?

Rai Bahadur.—In the case of globes 25 per cent. is packing and 75 per cent. goods and for jars and big things about 75 per cent. packing and 25 per cent. glassware.

Mr. Rahimtoola.—You are charged railway freight on gross weight. You are paying 75 per cent. on packing also?

Rai Bahadur.—In the case of some articles we pay freight on 75 per cent. and on some 25 per cent. and in no case less than 25 per cent.

Mr. Rahimtoola.—There is another point I want to ask you and this is regarding Dhrangadhra. You informed us that the quality of soda ash which you have used was quite satisfactory.

Rai Bahadur.—Not bad.

Mr. Rahimtoola.—Were you satisfied with the quality?

Rai Bahadur.—Yes.

Mr. Rahimtoola.—You have stated here that the closing of the factory was due to the withholding of help by Government.

Rai Bahadur.—I heard so.

Mr. Rahimtoola.—Which Government is that?

Rai Bahadur.—I think in my opinion it is the British Government.

Mr. Rahimtoola.—When they were working, you ceased to buy from them not because of quality, but because of price?

Rai Bahadur.—No. We only ceased to buy when the factory was closed. They say they could not give fresh stock, but only from the old stock and so we didn't buy.

Mr. Rahimtoola.—You told us just now that the moment a factory was working, the importers approached you and asked you to fix your own price for the soda ash which they were importing in preference to Dhrangadhra soda ash.

Rai Bahadur.—Yes.

Mr. Rahimtoola.—Therefore it follows that you preferred that soda because of the price rather than because of the quality.

Rai Bahadur.—There are two things in it. Firstly, we want to encourage the Dhrangadhra soda and secondly, we want to show to these people that we are not depending on them.

Mr. Rahimtoola.—I am afraid you have not understood my point. My point is this that the moment Dhrangadhra soda ash came into the market, the importers approached you and asked you to buy their soda ash in preference to Dhrangadhra at a price which is fancied by you.

Rai Bahadur.—Not fancied by me. The price they offered us was a little less than the Dhrangadhra people were charging.

Mr. Rahimtoola.—My point is that you preferred not on account of quality, but on account of price.

Rai Bahadur.—Price and quality is the same to us.

Mr. Rahimtoola.—Therefore in other words you ceased to purchase soda ash from Dhrangadhra.

Rai Bahadur.—On account of the fact that they closed the factory.

Mr. Rahimtoola.—You told us that they were working for 6 months.

Rai Bahadur.—Yes.

Mr. Rahimtoola.—When they started working, you gave the Company to understand that you were not able to purchase owing to lower prices.

Rai Bahadur.—No, not that. Those people came to us in the ordinary course.

Mr. Rahimtoola.—The closing of the factory was due to the rate war competition.

Rai Bahadur.—You mean Dhrangadhra factory?

Mr. Rahimtoola.—Yes.

Rai Bahadur.—Not on account of the competition, but only due to the management, the factory closed down.

Mr. Rahimtoola.—How can you blame the British Government, if the management was responsible for closing it?

Rai Bahadur.—I will tell you what I have heard. These people wanted some capital in order to reorganise the industry. I heard that Government didn't give them proper help, as the result of which the industry had to close down.

Mr. Rahimtoola.—Do you propose that the British Government should have financed that Company?

Rai Bahadur.—I don't mean that they should finance that company, but they should give help to some extent.

Mr. Rahimtoola.—I want to know exactly from you what kind of help you want.

Rai Bahadur.—We expect the kind of help that the Government gave to Tatas.

Mr. Rahimtoola.—That is protection?

Rai Bahadur.—Not merely protection. As you know when the Alliance Bank failed, the Government of India came to their help. It is only that kind of help we want from Government for industries.

Mr. Rahimtoola.—I am really sorry that I cannot follow your point. Do you want the Imperial Bank to advance a loan to these people?

Rai Bahadur.—Yes, to a certain extent.

Mr. Rahimtoola.—Are you aware that the Imperial Bank refused to give a loan?

Rai Bahadur.—That is what I hear.

Mr. Rahimtoola.—It is about another factory and it is very difficult for you to make a statement like that.

Rai Bahadur.—I am telling you what I have heard.

Mr. Rahimtoola.—Have you any definite evidence to show that a loan was asked for and was refused?

Rai Bahadur.—That I cannot say.

Mr. Rahimtoola.—Without any evidence, how can you make an allegation against Government?

Rai Bahadur.—I have told you what I have heard.

Mr. Rahimtoola.—What I personally think is that at least one of the most important factors which led to the closing down of the factory was the rate war competition.

Rai Bahadur.—That may be.

Mr. Rahimtoola.—If that is so, my opinion is, however patriotic the Indian factories may be, they are partly responsible for it, and the question of revival can only come in if the Indian factories agree to purchase their soda at a price which will enable them to make both ends meet?

Rai Bahadur.—I follow.

Mr. Rahimtoola.—You have made a statement here that the Indian purchaser of glassware shows a preference to imported stuff as against yours, so much so that some of the dealers have to pretend that your stuff is the imported stuff. Is that correct?

Rai Bahadur.—There is a general prejudice against all Indian made goods.

Mr. Rahimtoola.—I want to know whether what I have stated is correct or not?

Rai Bahadur.—That is true to a certain extent.

Mr. Rahimtoola.—It is a statement made by you and I am only repeating it. You made it even stronger by saying that the dealers were cheating, but I don't want to use that strong word.

Rai Bahadur.—We are not what may be called very learned people. We are only manufacturers. Further I am not speaking in the Assembly.

Mr. Rahimtoola.—First of all I did not use that word. But when you appeared to contest the statement I made, I had to use that strong word and bring to your notice what you said.

Rai Bahadur.—I have told you what I have to say.

Mr. Rahimtoola.—Is it due to the appearance or to any other defect that is noticed in the Indian stuff that they don't buy it and prefer the imported article?

Rai Bahadur.—To a certain extent it is due to prejudice and to a certain extent it is also true that the Indian article is inferior to the imported article.

Mr. Rahimtoola.—Is the prejudice against the Indian goods due to the quality?

Rai Bahadur.—The prejudice is not always due to the difference in quality. The fact of the matter is that the foreign manufacturers have been in the field for quite a long time and have established their name and connection.

Mr. Rahimtoola.—The only way in which I understand it is that the imported article may last longer than the Indian article.

Rai Bahadur.—That is not always the case.

Mr. Rahimtoola.—What is the real point about it? What is the exact reason for the prejudice against Indian goods?

Rai Bahadur.—For years and years they have been selling the English goods.

Mr. Rahimtoola.—You mean the Indian dealers?

Rai Bahadur.—Yes. They depend on the profit they make from selling these goods. If they get more profit from selling imported goods, it is to their interest to rush those goods. If on the other hand they can make more money by selling Indian goods, they will rush the Indian goods in the market. Whichever goods yield them more profit will be declared to be the best by the dealers.

Mr. Rahimtoola.—So, it is the dealers that say that?

Rai Bahadur.—Yes.

Mr. Rahimtoola.—I am talking of the purchaser and not the dealer.

Rai Bahadur.—The purchaser will hear what the dealer says.

Mr. Rahimtoola.—The purchaser is guided by the dealer?

Rai Bahadur.—That is right.

Mr. Rahimtoola.—In this connection you have said that the railway authorities are not patronising your stuff in spite of the fact that your stuff is very much cheaper than the imported stuff.

Rai Bahadur.—Yes.

Mr. Rahimtoola.—What is the procedure which they adopt? Is there any kind of test?

Rai Bahadur.—They have a test.

Mr. Rahimtoola.—Has the Indian article failed in that test?

Rai Bahadur.—No. I think not.

Mr. Rahimtoola.—It has not failed?

Rai Bahadur.—No.

Mr. Rahimtoola.—Do they give you any reason for rejecting your stuff?

Rai Bahadur.—The system they have is this. They have two kinds of indents, one for articles manufactured in India and another for articles

manufactured in foreign countries. As regards those articles for which the indent is placed in India, all Indian factories are allowed to tender, but as regards those articles for which the indent is placed outside India, we are not allowed to tender. For example, in the case of electric shades, we do not get a chance to tender. We have approached the authorities many times but all to no purpose. We have drawn their attention to the fact that our quality is in no way inferior to the imported stuff. They only say "This year I cannot do anything because it requires permission from higher authorities to revise the list. I shall do the needful next year" and next year nothing is done.

Mr. Rahimtoola.—Let me understand the point. The point that you make out is that a system of tender is in force as far as railways are concerned?

Rai Bahadur.—Yes.

Mr. Rahimtoola.—As regards those particular items like electric shades which you mention, you don't get an opportunity to tender?

Rai Bahadur.—That is our position.

Mr. Rahimtoola.—Which are the things for which tenders are asked in India? Can you give me an idea?

Rai Bahadur.—There are about 7 or 8 items—chimneys, globes Washington qualities, tumblers and a few others—in which our factories are interested.

Mr. Rahimtoola.—I attach some importance to this point. Therefore will you send me a note showing the articles produced in your factory for which tenders are not invited in India?

Rai Bahadur.—I shall send you a note and also copies of the correspondence which I had with the Railways.

Mr. Rahimtoola.—In some of your answers you have said that the figures are confidential and secret and that is why you could not give us the information. The practice of the Indian Tariff Board is that if the manufacturers request that certain figures should be kept confidential and not published in the report, their request is always complied with. In view of this explanation, would you re-consider your position?

Rai Bahadur.—To be plain with you, we are afraid of foreign manufacturers. We have had bitter experience in the Match industry. As you know, the Western India Match Company have secured a practical monopoly in India. Now you have a Technical Adviser. For aught we know, he may represent a big firm in Europe and from such information as we can give, they may find out where to establish a factory of their own in India and so on. I am a blunt man and I hope you won't misunderstand me on that account.

Mr. Rahimtoola.—In spite of the fear, you told me that you had no recommendations to make to obviate that.

Rai Bahadur.—Quite so. I have had a talk on this point with Mr. Hodkin. In India, people generally have that suspicion and I don't hesitate to say that I am also in the same boat.

Mr. Rahimtoola.—Will you then reconsider your position and let us have figures which we have asked for in questions 5 (b), 16, 30, 61, 62 and 63?

Rai Bahadur.—Yes.

Mr. Rahimtoola.—Apart from protection, you have referred to your grievances against Government. You say that Government are not helping you. I want to know exactly in a few words, if it is possible for you, supposing this Board thinks that the industry deserves protection, what is the kind of help, apart from protection, which you require in order to make the protection successful?

Rai Bahadur.—First of all, we want Government officials to be sympathetic.

Mr. Rahimtoola.—Regarding purchases?

Rai Bahadur.—No, not regarding purchases, but generally. At present, to be plain speaking, we are hated by Government officials. There are big capitalists in Bombay, Marwaris and others.

President.—Do they also hate you?

Rai Bahadur.—I mean even those people are hated by Government.

Mr. Rahimtoola.—That is all political. You know those things cannot be embodied in our report, can they?

Rai Bahadur.—No.

Mr. Rahimtoola.—I want some concrete proposals such as the establishment of a chemical laboratory, a research institute or a scheme for training young men.

Rai Bahadur.—First of all, every Head of the Department, in fact every purchasing officer, should be instructed by the Government of India to make the purchases made on behalf of Government in India. They should be told that preference should be given to Indian made goods provided the rates and the quality are satisfactory.

Mr. Rahimtoola.—Provided the quality and the rates are satisfactory?

Rai Bahadur.—Yes. If that is done, the prejudice is bound to disappear. That is a big thing. I shall give you one concrete example. When Sir H. Sams was Director General of Posts and Telegraphs I approached him many times, not for one year or two but for five years, but to no purpose. Then, Mr. T. Ryan came. He has now introduced one jar of ours. If we could make one jar for this Department, which I daresay any ordinary factory could do, it would be possible to get an order for Rs. 10 lakhs. It is that sort of thing which is needed. If we get help of that sort from Government, we are satisfied. I think I gave you a note in Ambala touching this point.

Mr. Rahimtoola.—These are the recommendations embodied in your general note?

Rai Bahadur.—Yes. After 20 years fighting we got two months ago a note from the Punjab Industries Department to the effect that they have started a laboratory and then simultaneously there was the Retrenchment Committee recommendation that the Department of Industries should be abolished!

Mr. Rahimtoola.—What kind of work were they doing?

Rai Bahadur.—Analysis of various kinds of articles.

Mr. Rahimtoola.—I want to know what exactly was the work for which the laboratory was established? Was it in connection with analysis only?

Rai Bahadur.—Yes. What we want is that information should be asked for from the Forest Department or other departments as to the availability of limestone or other minerals and so on in particular districts. They should submit monthly, quarterly or six monthly reports to Government giving such information.

Mr. Rahimtoola.—Is not that kind of work done by Government?

Rai Bahadur.—That was being done by the Forest Department about 15 years ago.

Mr. Rahimtoola.—I want to know about the laboratory. The work there, according to you, is confined to analysis?

Rai Bahadur.—Yes.

Mr. Rahimtoola.—You have stated in answer to question 26 that the proposal to train students in the Glass industry was started by the Government of the Punjab but it was turned down by the Government of India. Was it on financial grounds?

Rai Bahadur.—It was said that this was not the policy of the Government of India. It was in 1907 or 1908 at the time of Sir Louis Dane.

As soon as the scheme was made known to the Government of India they refused to give any help or assistance to the Government of the Punjab.

Mr. Rahimtoola.—You are aware that Industry is now a transferred subject and have you made any effort to get it through?

Rai Bahadur.—But the Industries Department can do nothing without money. The transferred department is there but they have given them no tools with which to work it.

Mr. Rahimtoola.—Do you mean to say that the Government of India can interfere with the amount of money which the Punjab Government want to spend?

Rai Bahadur.—The same policy is going on as before the department was transferred.

Mr. Rahimtoola.—That is to say, your Indian Minister is not responsible for not helping you?

Rai Bahadur.—Lala Harkishan Lal tried his best to get some money from the Government for industrial development but he could not get anything.

Mr. Rahimtoola.—Have you seen the Indian Fiscal Commission's Report?

Rai Bahadur.—No.

Mr. Boag.—There is only one point on which I should like a little more information; that is your answer to question 37. You say you are making arrangements shortly to run two or three furnaces together. You told us this morning that you are now working two furnaces together. How many pots are there in each of these furnaces?

Rai Bahadur.—10 pots of 800 lbs. in each furnace.

Mr. Boag.—You get your pots from Japan?

Rai Bahadur.—Yes, at present.

Mr. Boag.—Do you order them from Japan?

Rai Bahadur.—No. We get them through the Calcutta or Bombay agents. Sometimes when we get more favourable rates then we get them direct.

Mr. Boag.—Who bears the risk of breakage or damage to the pots?

Rai Bahadur.—We do.

Mr. Hodkin.—For what purpose do you use firewood?

Rai Bahadur.—For annealing ovens, starting the small furnaces and so on.

Mr. Hodkin.—Do you know how much coal you actually use in the furnace before you put in any glass materials?

Rai Bahadur.—About 150 to 200 maunds altogether for a fortnights heat and about 20 to 30 maunds of firewood. We begin with a small quantity of firewood and afterwards use 150 to 200 maunds of coal.

Mr. Hodkin.—You have to use 200 maunds of coal before you put glass materials into the furnace; after that you use approximately how much coal?

Rai Bahadur.—3 to 3½ tons per day.

Mr. Boag.—On each furnace?

Rai Bahadur.—Yes. Not on the annealing ovens.

Mr. Hodkin.—Do you know how much coal you use on your annealing ovens?

Rai Bahadur.—About half a ton for one furnace, and a few maunds of wood.

Mr. Hodkin.—How long does your furnace operate as a rule before you have to put it out?

Rai Bahadur.—About 8 to 10 weeks or a little more.

Mr. Hodkin.—After 8 to, say, 12 weeks you have to put out the furnace and start another one?

Rai Bahadur.—Yes, under our present system; not less than 8 weeks and not more than 12 weeks. Before that we had another system of changing the pots.

Mr. Hodkin.—You had six or seven months' life for your furnace when you changed your pots.

Rai Bahadur.—Yes.

Bhargava Glass Factory, Amritsar.*Letter dated the 1st January, 1932.*

I beg to say that I have received a copy of Government of India, Department of Commerce, Resolution No. 453-T. (2), dated Simla, the 20th October, 1931, through the Industrial Surveyor to the Government of the Punjab, Amritsar, asking me to send my representation regarding extension of Government protection to the Glass Industry in India. In this connection I beg leave to submit that Glass Industry in India is in a very shattered state and requires all reasonable help which the Government can afford to extend. In my opinion the industry can best be helped in the following ways:—

- (1) Imposition of high import duties on those glass articles which are being manufactured in India, e.g., bottles, bangles, chimneys and globes and sheet glass.
- (2) Because, owing to very high rate of railway freight, we are unable to send our manufactured articles to distant parts of the country, it is requested to fix up a low scheduled rate of railway freight for articles manufactured and despatched by Indian glass factories only, applicable to all Indian railways. The East Indian Railway has already sanctioned and allowed some special reduced rates from Naini and Bahjoi to some of its local station. In my opinion a scheduled rate of freight on the same basis or lower still, be recommended, to be adopted by all the Indian railways.
- (3) With a view to reduce our costs of production it is requested to fix up low scheduled rates of railway freight on some of the following main raw materials used by us:—
 - (1) Coal, from Jharia and Raniganj fields.
 - (2) Refractory materials from Jubbulour in the Central Provinces, Barakar and Kumardhubi in Bihar and Orissa.
 - (3) Soda from Calcutta, Bombay, Karachi and Dharangdhara.
 - (4) Sand from Bargarh and Lohgara in the United Provinces, and Jaijon Deaba in the Punjab.
- (4) The protection be afforded in such a way that all the glass factories working in India may be benefited by it.

I trust the Board will kindly take into consideration the above suggestions, which, if granted, will give an impetus to the industry and make it successful in course of time.

Bengal Glass Works, Ltd., Dum Dum, Calcutta.**A.—WRITTEN.**

- (1) *Letter dated the 10th December, 1931.*

Regarding your letter No. 666, dated the 16th November, 1931.

Further to your letter as above we have pleasure in forwarding you in a separate registered cover six copies of our replies to the set of questionnaires you sent us along with your letter as above.

As the replies to some of the questions are of a confidential nature, we shall be grateful if you kindly consider these as such.

If further explanations are necessary we shall be very pleased to submit any further details.

Enclosure.

1. The Works are owned by a registered joint stock company floated in Bengal.

2. About 99 per cent. of the Share Capital is owned by Indians. All the Directors are Indians and two of them form part of the superior management being the two members of the firm of Managing Agents and the expert and other supervising assistants and Departmental Heads are all Indians.

3. The Bombay Factory (the Peer Mahomed Glass Works) which was bought up by the Company as a going concern had been working before it was taken up by us on the 1st October, 1919. The Calcutta Factory commenced to manufacture in March, 1920.

4. The capacity of the factory as at present equipped is 270,000 lbs. of glass per month. But for want of orders we are now working only 90,000 lbs. in course of 26 working days every month.

5. (a) The list of articles we are manufacturing is attached herewith.

(b) The total value of manufactured goods during the last five years was:—

1926.	1927.	1928.	1929.	1930.
Rs. 1,69,206	Rs. 1,90,285	Rs. 1,65,810	Rs. 1,35,474	Rs. 1,49,495

It is not possible for us to state the quantitative production of each item.

6. At Dum Dum Cantonment in Bengal. We selected this place for the location of the factory because—

(a) though it was not in vicinity of the area from which the principal raw materials are obtained;

(b) it was comparatively near the coal-fields and electric power could easily be obtained and

(c) it was very conveniently situated near Calcutta and because

(d) here we have an abundant supply of labour and it afforded special facilities for supervision from Calcutta.

7. There are various points which must be taken into consideration in selecting the site of a glass factory. The ideal site would be where an abundant supply of raw materials can be combined with vicinity to an important market and a decent supply of labour. But it is not easy to find such a site and vicinity to important market ought to be a deciding factor in the selection of the site in India as otherwise in our opinion the packing and freight charges would be practically prohibitive and make a successful competition impossible.

8. Some of the goods manufactured by us such as globes and chimneys compare favourably with imported articles. But even these do not command the same price as imported goods. The reasons which contribute to secure a lower price for Indian goods are numerous. Prominent among these are—

(i) The superior labour in foreign countries due to long and continued practice.

(ii) The system of mass production resorted to in foreign countries which have already secured a foothold in the markets of the world.

(iii) The insistence of traders in India on lower prices for Indian goods on the assumption that goods produced in India must be cheaper than imported goods. Evidently these traders overlook the significant fact that "the superiority of one country over another in a branch of production, often arises only from having begun it earlier".

The Indian factories have to produce goods and sell them even without a fair margin of profit only to keep themselves going and in the hope of

capturing the Indian market in the near future by successfully competing with foreign producers. They base their hope on the abundant supply of raw materials and labour in India as also on the almost unlimited demand for glass goods in the country. Labour in India is slowly but surely acquiring skill and capital which had been shy is getting over its reluctance to come out of the iron box, hopeful signs for the industrial future of India which require a little help to grow and expand.

9. The production of glass in the works is not limited to certain months of the year. Only for a few days during the hottest month work has to be done in the cool hours of the night.

10. Sand, soda ash, arsenic, manganese dioxide, unslaked lime, borax, lead, cryolite, fluorspar, felspar, tin ash, cobalt oxide, copper oxide, chromium oxide, cadmium sulphide, etc., are used in the factory for the manufacture of glass and fire-bricks, fire-clay, fire-clay blocks are used as fire-resisting materials.

11. For the work done by us, i.e., a third part of the full capacity the price of raw materials used is an average of Rs. 40,000.

12. In order to produce one ton of ordinary glass we require the following raw materials:—

Sand 2,276 lbs., soda 675 lbs., lime 225 lbs., saltpetre 34 lbs., manganese dioxide 16 lbs., arsenic 22½ lbs., borax 5 lbs.

13. We get the sand from Bargarh a town near Allahabad which is situated at a distance of 600 miles from our works, the soda ash is supplied by Messrs. Imperial Chemical Industries (India), Limited, from their local godown and other chemicals as stated above can all be had locally.

14. The sand has to be railed from Bargarh to our Railway station siding (Dum Dum Cantonment), a distance of about a quarter of a mile from our works. The coal is obtained from the collieries of Ranigunj and Ondal.

15. No royalty is payable on raw materials.

16. For one wagon of sand (517 maunds) railway freight of Rs. 174-3 has to be paid and a further sum of Rs. 60 has to be spent for carrying same to our works as under:—

Rs. 30 cartage and Rs. 30 for loading and unloading and other incidental charges.

17. The only concession we ever enjoyed was a temporary rebate in 1924 in the railway freight for sand from Bargarh to Dum Dum Cantonment amounting to four pies per maund. Even this concession was withdrawn within a very short time.

18. We have to import the following raw materials from various countries, viz.:—

Cryolite	. . . 40 kilos @ £4-4	In lots—	
		Import duty	. . . Rs. 16-6
Fluorspar	. . . 50 kilos @ £3-0	Landing charges	. . . Rs. 2-3
		Clearing charges	. . . Rs. 4-4
Tin ash	. . . 5 lbs. @ £1-7	Other expenses	. . . Re. 1-4

19. Crucibles, which are now imported chiefly from Japan, can be conveniently manufactured in India at a lower cost. The Bengal Potteries Limited, are now making necessary experiments in this line. Manganese is available in crude form in Central Provinces. This has to be refined carefully before using.

20. The sand used by us at present is not an ideal raw material containing .02 Iron and resulting in giving to the glass a slight greenish tint. The lime also contains impurities which can be eliminated. Manganese dioxide is manufactured in India in commercial quantities, but is not absolutely pure.

21. The raw materials used in foreign countries are chiefly soda ash, red lead, potassium bichromate, carbonate of potash, antimony oxide, either sand or flint.

22. We do not make our crucibles at present. They are not, at present, commercially manufactured in India, they are imported from Japan and Germany. The price paid by us on the last occasion was Rs. 42 each c.i.f.c.i. The present rate after the increase in duties is Rs. 54 each, including 25 per cent. duty. The average breakage in transit may be put down at 10 per cent. which contributes to an increase in the price. The main ingredients for the manufacture of crucibles are seasoned fire-clay both burnt and unburnt and a little kaoline.

23. The furnace refractory materials are fairly satisfactory. We are not aware of their composition and we take the average life in use as three months. These are obtained from either Messrs. Andrew Yule & Co., Ltd., Bird & Co., Burn & Co., or other Indian fire-bricks manufacturing Companies.

24. The old Japanese processes in which glass is being manufactured in India do not require much expert supervision involving the use of skilled labour imported from abroad. In passing we may mention that our expert had his training in Germany.

25. This question does not arise as we have no imported labour.

26. We have introduced the apprentice system for the training of labourers and it is our experience that the Indian labourer improves with training being intelligent enough to take up suggestions.

27. Excepting a few processes for example hand-working and work on gas for making test tubes, syringes and other laboratory apparatus—in other processes automatic or semi-automatic machines can replace hand labour.

28. The industry being new in India and with the reports of failure of many glass factories in India, including the Government factory at Madras, in the experimental stages when it was doubtful if the goods produced would find a ready market and would be able to compete successfully with foreign products, it was considered prudent not to invest a very large capital. Some ten years back we tried to introduce some automatic machines for blowing bottles but found that the labourers could not handle them properly and had to give up the use of machines.

29. We have to contend with unfavourable climatic conditions for about 3 months during the year. But the difficulties we have to encounter are not insuperable and the labour being accustomed to these conditions do not find it difficult to work under them.

30. Total wages paid in 1930 Rs. 41,077.

We are appending below the total amount of money we spent on labour for the last five years:—

(a)	1926.	1927.	1928.	1929.	1930.
	Rs. 41,000	Rs. 40,000	Rs. 41,000	Rs. 42,000	Rs. 41,077

(b) The average wages was paid in the different classes of labour are as under:—

Blowing—Blowers Rs. 60, Helpers Rs. 30, Bubblers Rs. 21, Bubble Holders Rs. 18, Mould Catcher Rs. 17, Carrier Rs. 16, Rolsa Rs. 35, Cleaners, etc., Rs. 16.

Annealing—Rs. 19.

Furnace—Fireman Rs. 45, Assistant Fireman Rs. 21.

Mixing—Rs. 23.

Cutting—Rs. 22.

Grinders—1st Division Rs. 19, 2nd Division Rs. 14.

Packing, etc.—1st Division Rs. 19, 2nd Division Rs. 14.

(c) The total men and women as at present working in our factory are 167.

31. We have our cooly lines in which labour recruited from other parts of the country is housed. But we generally get local labour. The labourers get medical treatment and medicines free; and we have a qualified doctor to look after them. The question of maternity benefit does not arise in our case.

32. Coal is the principal fuel used and is available in sufficient quantities from Ranigunj and Ondal about 115 miles from our works. But the enormity of the railway freight puts an obstacle in our way. The cost in freight is more than the price of the coal varying on an average from Rs. 3-6 to Rs. 3-8 per ton for coal which sells at Rs. 3 at the pits mouth.

33. Coal is carried from either Ranigunj or Ondal coal fields and the railway freight per ton is Rs. 3-6. The distance at which the coal fields are situated are within 100—130 miles only from our works.

34. We use direct heated furnaces, i.e., Reverberatory Furnace of the Japanese type in which coal is used. The introduction of tank furnace means more initial outlay involving the use of crude oil or gas.

35. We use electric power for grinding shop, steam for sandblasting and frosting and gas for melting.

36. $1\frac{1}{2}$ tons of steam coal is required in the furnace to produce 1 ton of melted glass and about 1 ton of coal for finishing.

37. If we did not consider our works sufficiently large as a unit of production to ensure economy we would not have established and maintained it. Opinion regarding the smallest unit of production which can be operated economically must differ as there are various classes of products. But it would not be far wrong if we say that a factory producing $1\frac{1}{2}$ tons daily can be safely regarded as the smallest unit.

38. The factory consists of four Japanese type reverberatory-coal-fired-direct-heated-furnaces with nine crucibles in each furnace. The capacity of each crucible as at present used is 600 lbs. We have two press machines which we cannot successfully operate, grinding wheels for grinding chimneys and globes, etc., other grinder for grinding stoppered jars, sandblasting machine and a boiler, one gas machine (gas being generated from petrol in a gasoline tank) for the manufacturing of quinine tubes, test tubes, Homeopathic phials, syringes, laboratory apparatus, etc. We have no public gas connection at Dum Dum Cantonment. The process of manufacturing adopted is by mouth blowing and the system of hand operation are used for making electric shades, gas shades, water jugs, etc.

39. The system of manufacturing we have adopted is by mouth blowing and as they are blown they are placed in the annealing chambers. This no doubt increases the cost of production as the time and labour engaged for blowing and placing them in the chambers can be saved if automatic blowing and automatic transference into cooling ovens are arranged. In order to do this a continuous annealing chamber has to be introduced. This automatic process will reduce breakages. The introduction of tank furnace would remove once for all the question of pot breaking in the furnaces. The use of crude oil or of gas will keep the heat of the furnace steady or may be regulated according to requirements. The present system of firing absolutely depends on the whims of the firemen, who, if they neglect, reduce the heat of the furnace, thereby deteriorating the quality of the glass and also exposing the pots to the damages of being cracked due to variation of temperature.

From the above details it is evident that the works are not properly and fully equipped as it should be, but, given proper facilities of transport, full government and railway patronage the business can be carried on without incurring loss.

40. About five years back we were working with five pot furnaces and 400 lbs. capacity pots were used. It was argued by our then manager that when practically the same quantity of coal would be used, if we

Increased the number of pots and also used bigger size pots the productions would be increased and thereby the cost would be reduced. We have now succeeded in working our furnaces with 9 pots of six hundred pounds capacity.

The electric and gas shades were manufactured five years before by the hand work process only. After our manager went to Germany he introduced the manufacturing of electric shades partly by blowing and the finishing by the hand process. Thus the productions were increased from 3 dozen per day per man to 3 gross per day per man. The reduction in cost can then be easily calculated. Glass tubes are produced by us in our works but test tubes and syringes were made by generating petrol gas by an ordinary foot bellows. Our present manager has introduced the production of petrol gas and more elaborate gas flames by fitting up the gasoline tank attached to our electric power and more uniform and regular productions are being made.

41. The conditions of manufacture in India differ from those in competing countries because

- (a) Labour in those countries is skilled and having been trained for a long time has acquired efficiency.
- (b) The climate of different countries differ materially. It is because of these conditions that the process we have adopted is best suited to meet our requirements.

42. The grinding machines both for the chimneys, globes, etc., as also for the stoppered jars are made locally—the gasoline tank and burners and press machines were imported from Germany at a cost of £70 for the gas machine and £80 for the press machine.

43. It is not possible to secure the figures as the Statistical Department of Government does not collect the necessary informations regarding local production. The figures for foreign imports are easily collected as import duty has to be paid on them.

44. The principal markets to which we send our products are Calcutta and other principal towns in Bengal. We make special effort to send our goods to markets situated on the river as transport by water is less costly and involves less breakage.

45. (a) Present rate application to glassware is as under:—

1st class	·42 pies per maund per mile.
2nd class	·38 pies per maund per mile.

(b) The railways charge on gross weight inclusive of packing materials used, e.g., packing case, straw, etc. The normal ratio of gross weight to nett weight of principal kind of glass we produce, is 3 to 2.

We enjoy no advantages in freight concession nor the imported glassware get any favourable considerations on gross weight including packing materials.

46. There is no difference of freight charged by the railways in India for goods imported into India or for imported goods distributed in the various places in India from nearest ports.

47. It is probable to export Indian glassware to foreign countries which do not manufacture glass such as:—

Egypt,	Persia,
Mombassa,	Basra and others parts of Mesopotamia
Ceylon,	up to Bagdad,
Goa,	Daman.

48. Competition is keenest from Japan, Germany and Zeehoslovakia. These countries send out large quantities of bottles, tumblers electric shades pressed glass articles, chimneys, jars, etc. They get freight facilities on the

top of their skilled labour and properly fitted factories and enjoy ridiculously low concession freight rate.

49. The following table will show the different rates at which goods were imported and the price we could get for our goods of like nature.

Average for 5 Years.

Imported goods.		Our goods, packed.
Gross and packed in cases.		
Globes Rs. 19 c.i.f.	} Duty and other charges paid 20 per cent., landing and other charges 5 per cent.	Rs. 15, f.o.r. Calcutta.
Chimneys 14" Rs. 10-8 Japan c.i.f., Rs. 12, Austrian c.i.f.		Rs. 11-8, f.o.r. Calcutta.
Eureka Rs. 11-8 Japan c.i.f., Rs. 13-8 Austria c.i.f.		Rs. 11-8, f.o.r. Calcutta.

From the above table, no hasty conclusion must be drawn that we are in a position to sell our goods at cheaper rates than imported goods. But it only shows our helpless position that we must sell our goods at the above cheap rates irrespective of the cost of production if we desired to introduce our goods in the market.

50. The current prices of the imported goods are stated above.

51. The comparative statement attached herewith will show the nature of purchases made by the Government or the Railways or other Corporated bodies. The nature of such purchases are so irregular that we can neither count upon them nor can decide upon the outlay of fresh capital or make other arrangements to improve the quality. Purchases are made on monthly or annual tenders. The successful tenderer for the present year trains his labour, makes certain improvements in quality and by the time he is ready the year is finished and contract is completed and probably in the next year the order goes to some other competing firm leaving the previous year's contractor to disband his trained labour, etc. This itself, is a strong case for giving running contracts to such industries.

52. These points have been dealt with in reply to previous questions.

53. We are inclined to think that the prices at which German and Japanese articles are either imported or sold in the local market are uneconomical. This again may be due to a variety of causes:—

- (a) The cheap freight rate at which Japan exports her goods.
- (b) The manufacturing facilities which they get of ready chemicals, machines, trained labour.
- (c) Their selling organisation and their system of immediate payments enable them to sell their goods on a nominal profit or even at cost as they get a quick return of their money.
- (d) Their bank facilities.
- (e) On the top of all the solid support of their Government and their nation.

54. The present block value of the properties of our Company after writing off previous years' losses, etc., stand as below:—

- (a) No lease.
- (b) Freehold land belonging to the Company Rs. 25,600.
- (c) Building Rs. 1,03,396.
- (d) Value of the plant and machineries including furnaces Rs. 8,953.
- (e) Other assets, moulds, etc., Rs. 17,588.

55. Depreciation on each item since the commencement of the works, as on 30th September, 1930:—

- (c) Factory building Rs. 53,312.

(d) Plant and machineries Rs. 38,627.

(e) Other assets Rs. 15,639.

56. In order to fit up the works with latest and complete machineries and instal a tank furnace with a capacity of producing two tons white glass and a continuous annealing chamber the approximate cost will be as under:--

(1) Tank furnace with direct heat and oil fired and fitted with special recuperators and special smoke catcher	£1,200 c.i.f.
<i>Add to this the cost of carrying the materials from port to works and the building costs, say</i>	£120
(2) Continuous annealing chamber for hollow and pressed glass, heavy or light glass, either coal or oil fired and installed in quite a special manner	£550
<i>Add to this, the transport charges from port to works and the construction charges, etc.</i>	£60
(3) Automatic melting machine for chimneys and tumblers	£107 c.i.f.
(4) Cutting machine for chimneys cutting 800 to 1,000 pieces of chimneys per hour	£52
(5) Big press machine for glass boxes as used in railway	£110 c.i.f.
(6) Press machine	£78 c.i.f.
(7) Jar machine	£145 c.i.f.
(8) Jar grinding machine	£130 c.i.f.
(9) Stoppers grinding machines	£160 c.i.f.
(10) Stamping machine for chimneys and globes	£27 c.i.f.
(11) Machine for making gauge glasses	£49 c.i.f.

The total cost for machineries and the building of furnaces (tank and continuous annealing chambers) would be £2,788 or Rs. 36,244 calculated the sterling @ Rs. 13 nett. There would be further expenses of fitting up the machineries, payment of duties, tracing up of labour, etc.

Provided the existing factory sheds could be utilized for placing these machineries a sum of Rs. 50,000 to Rs. 60,000 could be properly equipped the factory to meet the foreign competition both in quality and price after the labour is fully trained up. Further a sum of Rs. 25,000 is necessary as a working capital and for pushing and organizing the sale throughout the country.

The cost of the buildings and land which we have and which have been valuated in 1927 by a qualified engineer is Rs. 1,03,396 for the buildings and sheds and Rs. 25,600 for the freehold land. At the present moment the construction may be completed within Rs. 80,000 more or less.

The operating cost of a factory so fitted would naturally be very much less than ours and the breakages and rejections in process would also be reduced.

57. (a) 1926, issued and subscribed capital	Rs. 3,13,927-8-0
Fully paid up capital	Rs. 69,000-0-0
	3,82,927-8-0

1927, same as in 1926.

1928 (capital was reduced for writing off losses incurred in previous years and necessarily value of share came down) authorized, issued and subscribed, all fully paid up shares after reducing capital Rs. 1,40,000.

1929 and 1930, same.

(b) Half-year ending 31st March, 1920, Rs. 18,435-8-0, half-year ending 30th September, 1920, Rs. 14,263-5-0.

(c) (1st half) 5 per cent. of paid up capital, (2nd half) 3½ per cent. of paid up capital represented by the dividends.

58. Nil.

59. Reserve fund as on 30th September, 1930, Rs. 400-10-0.

60. Please refer answer of questionnaire No. 56.

61. Necessary information is to be found in Form I and Form II attached herewith.

62. Formerly the breakages and rejections came up to 25 per cent. but with closer and careful inspection it has been reduced to 15 per cent.

63. Variations in expenditure occur between the manufacturing of (a) hurricane globes and chimneys and (b) bottles as under:—

(a) In hurricane globes and chimneys the top and bottom portions are to be cut off and so much glass has to be thrown away only to be used as cullets. We do not want to manufacture cullets but globes and chimneys. Of course these cullets are re-melted and utilised in that way only. We have to use slightly less chemicals and sand in case of chimneys.

(b) In case of bottles we do not get so much cullets but the whole glass that we take out is used in manufacturing the bottles and thus there is practically little wastage in the process of manufacturing, as such more raw materials and chemicals have to be used. This applies in case of pressed articles also. The chimneys have got to pass through various process of cutting, grinding, etc., thereby increasing the cost. The cost differs in raw materials, labour and packing.

64. 1½ per cent. on pucca buildings, 2½ per cent. on factory sheds, 10 per cent. on furnace, 10 per cent. on plant, machineries, etc., 10 per cent. on all other assets.

(a) Regarding furnace, the percentage of depreciation allowed by income-tax authorities are not in any way reasonable or suitable because in furnace there are two heads:—(i) the main structure of furnace in which we agree with them, but (ii) Furnace upkeep, i.e., expenses or charges required for maintenance, repair and renewal of furnace we usually take them as manufacturing charges hence depreciation comes to 100 per cent. as these go in the account of cost of production.

(b) Also in building depreciation should be 2½ per cent. instead of 1½ per cent.

65. Average value of the stocks of raw materials about Rs. 2,500. Average stock of finished and unfinished goods about Rs. 11,000. Average out-standings in respect of goods sold about Rs. 20,000 (considered good).

66. Head office is under the control of a firm of Managing Agents, under the name and style of Messrs. Ebram Peer Mohamed & Co.

(a) Expenses of management are Rs. 16,825 a year under the following heads:—

Salary of staff	Rs. 6,590
Motor car expenses	„ 2,463
Advertisement	„ 353
Bank charges and interests	„ 2,425
Printing and stationery	„ 1,440
Auditors' and directors' fees	„ 2,379
Other miscellaneous expenses	„ 2,379

(b) Nil.

67. From the replies given to previous questions it will be evident that the glass industry in India satisfies the conditions laid down by the Fiscal Commission to enable the industry to get protection. It possesses natural advantages such as an abundant supply of raw materials, cheap power, a sufficient supply of labour and extensive home market. And with these advantages it only requires temporary protection to enable it to withstand foreign competition.

Regarding the second condition insisted upon by the Fiscal Commission it would suffer to quote the following from a paper as the manufacture of glass in India contributed by Alfred Chatterton to the "Industrial Handbook" published in 1919 by the Indian Munitions Board:—

"The glass industry has come to stay; but without aid from the State, it is likely to make very slow progress in the future."

Mr. Chatterton considered a Government Glass Factory essential for training and experiment, the results obtained by experiment to be placed at the disposal of the public.

After a period of protection it is sure to be able to face world competition without protection as even without any form of help from the State it is already making slow but sure progress.

Even a free trader like Mill said—"The only case in which, on mere principles of political economy, protecting duties can be defensible, is where they are imposed temporarily (especially in a young and rising nation) in hopes of neutralizing a foreign industry, in itself perfectly suitable to the circumstances of the country".

The consumption of glasswares in the country is not inconsiderable and is on the increase. And unless the industry is firmly established in India the drain incurred by the import of glass goods would not be successfully checked. In this connection it would not be out of place to mention that the glass products imported into India are mostly from countries outside the British Empire—countries which have adopted protection to foster their home industries.

68. In England prohibitive duties are being imposed on luxury vegetables, fruits and flowers. In India we can certainly claim for this industry generally such prohibitive duties as would render effective help to the glass industry in India. In addition to such duties the Government can and should help the industry (1) by arranging loans from Banks or by supplying machinery the price to be paid by easy instalments; (2) by placing their orders with Indian Companies; (3) by insisting upon Government and Company managed railways taking requirements from Indian companies; (4) by reducing railway freight for raw materials and finished goods.

The import duty on blown glass, such as globes and chimneys, tumblers, etc., pressed glass articles such as salt cellars, oil cups, pressed tumblers, pressed dishes, etc., glass manufactured by handworking process such as electric shades, gas shades, water jugs, etc., bottles of all kinds, should be increased to at least 50 per cent. This increase in duty may be made for a period till the other facilities mentioned herein are granted.

69. No industry in India will suffer on any account by the imposition of this duty, on the other hand new industries, such as manufacturing of hurricane lanterns and other lamp parts will be started.

It is earnestly desired that the Tariff Board should very sympathetically consider all minute details and give this industry the help which it so richly deserves.

QUESTION No. 5 (a).

List of articles manufactured by the Bengal Glass Works Limited of Dum Dum Cantonment.

1. Glass globes for Dietz hurricane lanterns patterns.
2. Glass chimneys, 1" slip for wall lamps.
3. Glass chimneys, $\frac{3}{4}$ " slip for wall lamps.
4. Glass chimneys, Eureka slip for wall lamps.
5. Glass globes pinemoon Nos. 1, 2 and 3 for table lamps or platform lamp.
6. Municipal oil pots.
7. Chimneys, 14" wonder for hanging lamps.
8. Chimneys, 20" favourite for hanging lamps.
9. Chimneys, 30" favourite for hanging lamps.
10. Chimneys, 40" favourite for hanging lamps.
11. Chimneys, Duplex for table lamps.
12. Stoppered glass jars from $\frac{1}{4}$ lb. capacity to 12 lbs. capacity.
13. Glass globes for Kitson lamps.
14. Glass globes for Autolux lamps.
15. Gas shades.
16. Electric shades (Irene pattern).
17. Opal langham shades.
18. Opal glass bowls.
19. Opal glass tumblers.
20. Water tight well glasses 50 c.p. 100 c.p.
21. Bulkhead glasses with flange or without flange.
22. Adlake chimneys.
23. Jena chimneys with holes.
24. Globes for Washington lamps.
25. Glass lubricators (cup shape or cylindrical).
26. Specimen glass jars.
27. Museum glass jars.
28. Glass jars for B. L. & M. Cells.
29. Rectangular glass jars.
30. Glass paper weight.
31. Gloy bottles.
32. Gas roof lamp globes 7 $\frac{1}{2}$ " diameter.
33. Oil roof lamp globes (flat bottom).
34. One light globes for electric fittings.
35. Globes for Duplex fittings.
36. Test tubes.
37. Syringes.
38. Glass tubes for quinine tabloids.
39. Specimen tubes.
40. Conical urine glasses.
41. Glass shades for mirador lamps.
42. Unstoppered glass bottles both round narrow mouth and wide mouth from 1 oz. capacity to 4 lbs. capacity.
43. Petri dishes with covers or without covers.
44. Glass globes for petromax lamps, 300 c.p., 600 c.p.

QUESTION No. 61.

Form No. I.

	1928.	1929.	1930.
	Rs.	Rs.	Rs.
Sand	5,950	5,472	6,473
Heavy chemicals	6,092	2,629	2,919
Soda ash	11,740	12,036	13,166
Saltpetre	2,908	1,947	1,465
Lime	820	283	155
Opal chemicals	1,400	1,000	900
Sundry chemicals	350	935	739
Furnace upkeep	4,943	1,884	2,162
Crucibles	7,877	6,150	5,408
Sundry stores	2,200	500	400
Coal	20,346	19,456	20,091
Wages	49,099	42,881	41,077
Packing	5,023	4,188	5,715
Salary	10,319	7,356	6,590
Rent	2,624	1,800	1,475
Miscellaneous	10,757	7,600	7,621
Motor car and lorry upkeep	5,624	5,300	4,698
Transport charges	1,969	1,253	1,293
Directors' and audi- tors' fees	1,825	2,092	1,175
Commission on sale	1,754	1,424	1,584

QUESTION No. 61.

Form No. II.

Expenses per 1 ton of glass.

Raw materials—	Rs. A.		Rs. A.
Soda ash	33 0	Packing	21 0
Heavy chemicals	4 0	Miscellaneous	26 8
Sand	17 0	Salary	20 0
Lime	2 8	Directors' and auditors' fees	3 8
Crucible	16 0	Commission on sale	13 0
Saltpetre	7 0	Motor and lorry upkeep	11 8
Furnace	11 0	Mould	6 0
Coal	36 8		
Wages	95 8		
		Total	325 0

(2) Letter No. T. B./19-4, dated the 17th December, 1931, from the Bengal Glass Works, Ltd.

As directed by your Chairman we have pleasure in submitting herealong the necessary informations required.

1. Price paid for lime.—Rs. 1-10-0 paid per maund (Factory Maund) of unslaked lime, delivered free to our works,

2. *Verify if coal consumption is 1½ tons per ton of melted glass or per ton of raw materials.*—Our consumption of raw materials in 9 pots at 500 lbs. per pot is 4,500 lbs., i.e., about two tons.

Coal consumption per day for working 9 pots is 3 tons. Therefore, it is evident that we take 1½ tons coal for smelting one ton of metal.

3. *Average proportion of unusable material per ton of coal bought and paid for over last five years.*—Unusable materials in coal are as under:—

Rubble	Average 15 per cent.
Dust	Average 5 per cent.

4. *Take representative specimen of finished articles and show how many pieces go to one ton.*—Breakages of hurricane globes, Eureka chimneys, Gem chimneys and 14" wonder chimneys—

12 per cent. in annealing oven and cutting.
1 per cent. in grinding.
2 per cent. in transit during despatch.

Articles blown per ton of melted glass. Breakages Finished articles.

	Per cent.	Pieces.
Hurricane globes 3,264 pieces at 11 oz. of gross weight per piece	15	2,769
Eureka chimneys 4,480 pieces at 8 oz. of gross weight per piece	15	3,808
Gem chimneys 8,960 pieces at 4 oz. of gross weight per piece	15	7,616
14" wonder chimneys 4,480 pieces at 8 oz. of gross weight per piece	15	3,808

5. *Balance sheet for five years.*—Balance sheets for the years ended 30th September, 1926, 30th September, 1927, 30th September, 1928, 30th September, 1929 and 30th September, 1930 (enclosed herewith).*

(3) *Letter No. T. B./19—5, dated the 19th December, 1931, from the Bengal Glass Works, Ltd.*

I beg to supplement my statement in answers to your questionnaires as also the evidence which I have given before your Board with the following statement. This escaped my notice at the time of drafting my replies.

“By the increase of duty in chemicals, crucibles, machineries, etc., the glass manufacturers who use these chemicals, etc., will have to bear the increased duty. My suggestion is that such increased duty should be refunded to the *bonâ fide* glass manufacturers. This will thus minimise to a certain extent the indirect effect of the new taxation. This may be done by asking either importers or those who deal in such materials to apply to the Collector of Customs with the certificates from such glass manufacturers who either indent or purchase them from stockists. I understand this procedure had been followed in Japan to help their infant industries.”

* Not printed.

THE BENGAL GLASS WORKS, LTD.

B.—ORAL.

Evidence of Mr. D. N. SEN, Director, the Bengal Glass Works, Ltd., recorded at Calcutta, on Thursday, the 17th December, 1931.

President.—Mr. Sen, you represent the Bengal Glass Works, Limited?

Mr. Sen.—Yes.

President.—You have sent in a letter to us in which you ask that as the replies to some of the questions are of a confidential nature, you would like us to regard them as such?

Mr. Sen.—Yes.

President.—There is one little difficulty with regard to that question. It is necessary for us, if we are to submit anything like a complete report to the Government of India, that the facts regarding the glass industry in India should be stated in full. But I quite recognise at the same time that individual factories may have difficulties if certain facts are disclosed in the report. Suppose we arranged it in this way: if there are replies to any particular questions which you consider in your own interests should be kept confidential, we state those facts in the course of our report but we undertake not to disclose the name of your factory, would that be all right?

Mr. Sen.—Yes, that would be all right. It is only the portions where we deal with our sales that should be kept as confidential. There are certain competing firms which may take advantage of the names of parties. Supposing a certain party does not buy anything from our competitors and buys only from us say Rs. 10,000 or Rs. 20,000 worth of goods, they will all rush to that party and try to get him.

Mr. Rahimtoola.—Now that you have told us that, it would be much better if you could indicate exactly what answers you would like us to be treated as confidential?

Mr. Sen.—The estimate of sales which we have given on the last page.

President.—Only that particular statement?

Mr. Sen.—Yes.

President.—Is there anything else?

Mr. Sen.—Take for instance the statement showing the cost of production per lb. Those calculations we think we have found out here. I do not know whether others also have found them out in this country. They may not be very confidential, but I do not object if they go in the report.

President.—It is only in regard to the statement of sales that you want the information to be treated as confidential.

Mr. Sen.—Yes.

President.—You are a Director of the Bengal Glass Works, Limited?

Mr. Sen.—Yes, I am.

President.—I take it that you represent on the Board of Directors, the Managing Agents?

Mr. Sen.—That is right.

President.—That is to say, you are one of the Directors nominated by the Managing Agents?

Mr. Sen.—Yes.

President.—The Managing Agents are Messrs. Ebrahim Peer Mahomed and Company?

Mr. Sen.—Yes.

President.—The Glass Works at Bombay which your Company bought belonged to Messrs. Ebrahim Peer Mahomed and Company. Am I right?

Mr. Sen.—Yes, that was a proprietary concern.

President.—Your Company bought those works in 1919?

Mr. Sen.—That is right.

President.—And operations started in 1920?

Mr. Sen.—Yes.

President.—What exactly was the consideration which was given by the Bengal Glass Works, Ltd., to Messrs. Ebrahim Peer Mahomed and Company for the factory at Bombay?

Mr. Sen.—We paid Rs. 50,000 in respect of the goodwill of the Company and 6,900 shares, fully paid up, to the original proprietor. That came to Rs. 1,19,000.

President.—What is the par value of the share?

Mr. Sen.—At the present moment, after capital has been reduced, the value of the share is Rs. 2. Originally it was Rs. 10, of which we had called for Rs. 2-8-0 on application and Rs. 2-8-0 on allotment. As we had lost heavily, we thought that it was no use showing the loss—assets which were not represented by capital; so we reduced the value. The present value is Rs. 2, fully paid up.

President.—Altogether it is 70,000 shares?

Mr. Sen.—Yes.

President.—Out of that, the Managing Agents hold how many?

Mr. Sen.—The Managing Agents are holding about 30,000 shares.

President.—At the present value of Rs. 2 per share?

Mr. Sen.—Yes.

President.—That is the paid up value?

Mr. Sen.—Yes.

President.—It represents Rs. 60,000?

Mr. Sen.—Yes. That is the value of the shares directly held by the Managing Agents. There are other shares owned by friends and relations of the Managing Agents.

President.—Those are not included in the thirty thousand?

Mr. Sen.—No.

President.—They come out of the balance of forty thousand?

Mr. Sen.—Yes.

President.—The actual amount paid in cash was Rs. 50,000?

Mr. Sen.—Actually we paid Rs. 50,000 in cash and the balance was paid in fully paid up shares.

President.—I don't suppose you were able to bring over to Calcutta any of the plant.

Mr. Sen.—Some parts of the plant of course we did bring in.

President.—What was the sort of plant that you brought from Bombay to Calcutta?

Mr. Sen.—We brought out from Bombay Blackstone engines; we brought out two boilers also. We dismantled the factory there and brought out the chimney. The frosting machines also we brought from Bombay. Another cutting machine which we could not operate was also brought from Bombay.

President.—What about the buildings and land?

Mr. Sen.—That was all sold.

Mr. Rahimtoola.—Was your factory in operation before you took over the Peer Mahomed Glass works?

Mr. Sen.—No. The Peer Mahomed Glass Works we bought in 1919. The Calcutta factory started operations in 1920.

Mr. Rahimtoola.—The factory which was in existence in Bombay you simply brought out here?

Mr. Sen.—No, we brought it at a later date.

Mr. Rahimtoola.—I want to know whether the Bengal Glass Works was in working order before you took over the Peer Mahomed Glass Works?

Mr. Sen.—In 1919, the Company was floated and we bought the Peer Mahomed Glass Works as a going concern. In 1919, that Company was working in Bombay and then we started operations in Calcutta in 1920 when the buildings were completed.

Mr. Rahimtoola.—Do I understand that the Bengal Glass Works, Limited, was formed after the purchase of the Peer Mahomed Glass Works in Bombay?

Mr. Sen.—The Company was first formed. The Company purchased the Peer Mahomed Glass works in 1919.

Mr. Rahimtoola.—The Company was formed with the object of running it in Calcutta?

Mr. Sen.—We purchased the Peer Mahomed Glass Works and wanted to run it as a branch show, because then the factory was working on a profitable basis. The main factory was not started then.

Mr. Rahimtoola.—I don't quite follow yet. The Company was formed in Calcutta with the object of running a factory in Bombay?

Mr. Sen.—Both in Calcutta and in Bombay.

Mr. Rahimtoola.—That is exactly my point. There was no factory, before you took up the Peer Mahomed Glass Works, in Calcutta.

Mr. Sen.—In Calcutta, the Bengal Glass Works had no factory then.

Mr. Rahimtoola.—Exactly. Therefore the purpose of forming the Company first was to run the Bombay show?

Mr. Sen.—Yes.

Mr. Rahimtoola.—The factory was in Bombay and the Board of Directors of the Bengal Glass Works were in Calcutta.

Mr. Sen.—Some in Bombay and some in Calcutta.

Mr. Rahimtoola.—Therefore the purpose of the Company was to run the Bombay show from Calcutta?

Mr. Sen.—We had always thought of starting another factory simultaneously in Calcutta.

Mr. Rahimtoola.—Have you two factories or one?

Mr. Sen.—Only one. We stopped working the Bombay factory.

Mr. Rahimtoola.—When did you stop working the Bombay factory?

Mr. Sen.—At the end of 1926 and beginning of 1927.

Mr. Rahimtoola.—You closed the Bombay factory then?

Mr. Sen.—Yes.

President.—Coming to your reply to Question 4, I should like to know how exactly you work out this calculation regarding the capacity of the factory. That has caused me a little difficulty. Your statement is that the full capacity of the factory is 270,000 lbs. of glass per month.

Mr. Sen.—That is right.

President.—That is roughly equivalent to 1,500 tons a year.

Mr. Sen.—Yes.

President.—At present you say for want of orders you are working to a third of your capacity?

Mr. Sen.—Yes.

President.—That would mean approximately about 500 tons a year?

Mr. Sen.—Yes.

President.—I mean, at your present rate of output; is that the position?

Mr. Sen.—Yes.

President.—What I want to get at is whether we can take your figures of capacity and of output in terms of weight as more or less accurate for our purpose. I take it that most of your output which consists of globes, chimneys and various pieces of glassware of that kind would generally for trade purposes

be estimated not in terms of weight but in terms of the number of pieces. Am I right?

Mr. Sen.—No. Excuse me, it is not so.

President.—Will you explain to me what the position is?

Mr. Sen.—The cost of production that we find out in manufacturing glass is not by pieces but by weight. We calculate that the capacity of a chamber or crucible, is, say 600 lbs. In that crucible of 600 lbs. capacity, if I charge the raw materials, it must be somewhere about 600 lbs. It may be 600 lbs. or it may even be 500 lbs. I shall explain to you presently. At the time of pot charging, as we call it, what we do is we first charge the pot and allow the glass to settle down after a period. If that is not just the period that we want to allow for glass to settle down and the second charge is done earlier, I may not put 600 lbs. in that chamber. That is a matter of inspection. If there is any irregularity we may not put in 600 lbs. We may put in 500 lbs. But whatever it is we have seen from calculation that we cannot use for manufacturing purposes more than 350 lbs. of glass from the chamber.

President.—May I take it then that the capacity of the crucible is 600 lbs.?

Mr. Sen.—As at present, yes.

President.—If you operate the crucible with a normal capacity of 600 lbs., you would be able to get melted glass to the extent of 350 lbs.

Mr. Sen.—I will get more melted glass but the melted glass suitable for use would be only 350 lbs.

President.—That is what I mean. The melted glass which can be used for the purpose of manipulation would be roughly 350 lbs.

Mr. Sen.—350 to 360 lbs.

President.—Out of 600 lbs. you will get 350 lbs. which can be used for the purpose of manufacturing glass?

Mr. Sen.—Yes.

President.—You have got four furnaces, haven't you?

Mr. Sen.—Yes.

President.—There is nothing to prevent you from operating all the four furnaces?

Mr. Sen.—Nothing.

President.—Or would you use one furnace as a stand-by?

Mr. Sen.—If we get sufficient orders to enable us to work all the four furnaces, we will keep a fifth furnace as a stand-by.

President.—Each furnace has got 9 crucibles?

Mr. Sen.—Yes.

President.—Let us take it roughly out of each furnace you get 3,150 lbs. of melted glass in the course of 24 hours?

Mr. Sen.—Yes, about 3,000 lbs.

President.—That is what you get in the shape of melted glass suitable for the manufacture of glassware in the course of 24 hours.

Mr. Sen.—You are right.

President.—That for four furnaces will give you about 12,000 lbs.

Mr. Sen.—Yes.

President.—You work 26 days, don't you?

Mr. Sen.—Yes.

President.—That gives you 317,200 lbs. Approximately you have taken the figure of 317,000 lbs. as a safe figure.

Mr. Sen.—Yes. In these figures there might be some difference.

President.—But this is the basis on which you have calculated?

Mr. Sen.—Yes.

President.—Therefore this figure of 270,000 lbs. a month represents really the amount of melted glass?

Mr. Sen.—Yes.

President.—Therefore in terms of finished glass the figure would be less?

Mr. Sen.—Naturally.

President.—What do you reckon as the wastage either by breakage or in any other form between melted glass and finished glass?

Mr. Sen.—Originally it was 25 per cent. It has come down to 15 per cent. now.

President.—That is to say if you make an allowance of 15 per cent. on the output of melted glass, you get approximately the output of finished glass?

Mr. Sen.—Approximately.

President.—There is no other factor to be taken into account?

Mr. Sen.—No. It all depends on the nature of the article we manufacture. If we had been manufacturing only thin chimneys and hurricane lantern globes, the rejections might vary. As we are making a variety of goods—some are thick, some are heavy and some are thin—the average is 15 per cent. If we make only thin goods, the breakages will be more.

President.—We shall take 15 per cent. as the normal average loss due to breakage.

Mr. Sen.—Yes.

President.—Now taking the list of articles that you give here on page 11, may I take it that the greater part of your output is in the form of lampware?

Mr. Sen.—That was usually the case, but in the last two years it is bottles and lampware in the proportion of half and half on account of the orders that we are getting for bottles. As we are getting less orders for chimneys and lampware, we have to fall back on this other branch.

President.—The bottles that you make are generally phials, aren't they?

Mr. Sen.—We generally make tincture series bottles.

President.—What are they?

Mr. Sen.—For keeping tinctures.

President.—We might comprehensively classify them as phials?

Mr. Sen.—Yes. By bottles we mean round bottles. By phials we mean dispensing bottles.

President.—With regard to the question of location of your factory I take it that the great advantage of Calcutta as a centre for the glass industry is that you are very near the market?

Mr. Sen.—Yes.

President.—Also you are nearer the coal-fields than up-country centres where the glass industry is now carried on?

Mr. Sen.—Quite.

President.—Then as far as soda ash and other imported chemicals are concerned you are right on the spot and you don't bear any freight.

Mr. Sen.—No.

President.—Also you get a fairly abundant supply of skilled labour if you want to recruit it?

Mr. Sen.—Yes.

President.—On the other hand you will admit that as far as materials like sand are concerned you are at a disadvantage, and while you can be sure of getting a sufficient supply of labour, your labour is likely to be more expensive in Calcutta.

Mr. Sen.—That was the case in the beginning but in these days we are getting plenty of trained glass blowers and other labour on account of various factories being started every day. There is no difficulty about labour in Calcutta now.

President.—Obviously the rate of wages in a place like Calcutta where there is considerable demand for skilled mechanical labour would be higher than in upcountry centres.

Mr. Sen.—Naturally, of course in places like Ferozabad where practically everyone is a glass blower, labour is cheaper than in Calcutta.

President.—You are at present doing most of your work after the melting stage by hand and therefore it is very likely that the main item of cost in your factory would be labour?

Mr. Sen.—That is right.

President.—And so long, therefore, as you are dependent upon hand labour the fact that you are situated in a place where the rates of wages are likely to be higher would operate as a somewhat unfavourable factor, whereas, on the other hand, if your factory were equipped with mechanical appliances the fact that you are in Calcutta would be a factor in your favour?

Mr. Sen.—But the fact remains what percentage of the money one has to spend on labour.

President.—I notice from your figures that much the biggest item of cost is labour.

Mr. Sen.—Yes. We pay about Rs. 42,000 during the year.

President.—It is very nearly 100 rupees per ton of glass.

Mr. Sen.—It depends on the nature of the industry. Also it may be that you may get labour cheaper there, but whether labour is cheap or costly depends on efficiency; you cannot deduce that from the rate of wages. In Upper India they are less efficient on account of the climate.

President.—Suppose you look at it this way: instead of considering the aggregate amount which you dispense in wages in a year, if you take the amount of money that you pay on labour per ton of glass produced, that gives you the real test?

Mr. Sen.—Yes.

President.—If your cost of labour per ton of glass is Rs. 95, that makes allowance straightaway for the factor of efficiency, and you need not consider that factor any further. But don't you think that while a glass works makes glass mostly by hand labour the rate of wages in the locality where the factory operates is a matter of very considerable importance?

Mr. Sen.—It is so.

President.—I quite understand at the same time that from the point of view of coal and nearness to the market Calcutta has obvious advantages.

Mr. Sen.—Yes.

President.—At present you are working to a third of your capacity: how exactly is the restriction carried out? There are two ways of restricting output. You can either operate all your plant for a limited part of the year or you can operate a limited part of the plant for the whole year.

Mr. Sen.—For the last two years we have operated only a third of our plant throughout the year.

President.—How many furnaces are you working?

Mr. Sen.—We have been working two and worked three six years back. We never worked four, but at present we are operating only one furnace. I want to make it clear that when I say we were operating three furnaces the furnaces had 400 lbs. chamber and five chambers, but I am having nine chambers with 600 lbs. capacity now.

President.—So that it is really by limiting the number of furnaces operated that you are restricting your output?

Mr. Sen.—That is correct.

President.—I take it that the practice in your works is that once you start the furnace, the furnace is operated continuously whereas the actual manipulation is done only by day?

Mr. Sen.—That is correct.

President.—How many hours is your shift?

Mr. Sen.—Eight hours.

President.—So that while the furnace is operated 24 hours the actual manufacture goes on for eight hours?

Mr. Sen.—That is correct. The position is this that after the work is finished you have got to charge the raw materials and you must allow sufficient time for melting the raw material for the glass to be ready the next morning, so that although we are not manufacturing all the time we are allowing time for making the glass ready.

President.—That is to say you start your furnace, do all the initial heating and the furnace starts work. You wait for 24 hours before you get your melted glass and then you work for eight hours on the amount of melted glass that you can dispose of in the course of eight hours. The furnace goes on operating in the meantime and goes on practically right through the year?

Mr. Sen.—That is right.

President.—Coming now to your answer to question 12, does that give a complete list of all the materials that you use?

Mr. Sen.—Yes, all the materials for the ordinary glass that we make.

President.—You mean the kind of glass for chimneys: for phials do you want a different composition?

Mr. Sen.—If we want to make phials alkali free we want a different composition.

President.—Taking the globes and phials that you are making now you want more or less the same composition?

Mr. Sen.—With slight variations. Take for example the battery jars that we manufacture. The glass must stand high pressure and that has got to pass through 10,000 megohm test and for that quality of glass the whole batch has got to be changed.

President.—That rather interrupts your melting, does it not?

Mr. Sen.—No.

President.—What I mean is this: you have only one furnace working now.

Mr. Sen.—But with separate chambers.

President.—You use different crucibles?

Mr. Sen.—Yes.

President.—The point I want to be sure about is this: do I take this as the quantity of materials that you use per ton of melted glass or finished glass? You give these quantities, 2,276 lbs. of sand, 675 lbs. of soda and so on. Supposing I put these quantities into the furnace can I depend upon it that out of that batch I can get one ton of finished glass or only one ton of melted glass?

Mr. Sen.—One ton of finished glass.

President.—The total of these figures is 3,253; out of that you get 2,240 lbs. of finished glass, therefore there is wastage of 1,013 lbs.?

Mr. Sen.—That is right.

President.—That represents on the quantity of original batch a wastage of 31 per cent.?

Mr. Sen.—30.31 per cent. is the wastage.

President.—Therefore that represents loss in melting and also loss by breakage.

Mr. Sen.—Yes, but a certain percentage is recoverable.

President.—I am coming to that point later. Taking simply the amount of finished glass that you get, may I take it that 31 per cent. represents loss in melting and loss by breakage during the process of manufacture?

Mr. Sen.—That is correct. This point would be clear if I give you some details. I have got a note here which I will read to you—

“ In the month of May 247 pots worked—we did not work on Sundays and we put a third charge on Sundays and therefore our produc-

tion on Monday is more. That gives you, calculating three charges for Monday, 40,249 lbs. in the following way. We allow 120 lbs. per pot and that would be 29,640 lbs. and 9 pots we allow 20 lbs. at the bottom which we cannot work because it goes absolutely through the bottom of the pot. That gives you 12 pots at 20 lbs.; that is 240 lbs. or a total of 29,880 and there is still 10,369 lbs. over and above all this. We have been trying to calculate even one ounce of glass which nobody has done, and this I suggest should be kept a secret. Even then we cannot account for 10,369 lbs. of glass. We do not know where the glass has gone."

President.—I can quite understand that when you put these materials into your furnace a certain amount escapes as gas.

Mr. Sen.—For that we allow only 10 lbs. out of 600 lbs. as effervescence and that is only soda ash and nothing else.

President.—But I find that generally the figure that is taken in the text books is somewhere about 16 per cent.

Mr. Sen.—I don't know but 10 lbs. is what we allow from our experience.

President.—That is only 1½ per cent., this loss in melting.

Mr. Sen.—We have been considering this question. We brought the Industrial Chemist of the Department of Industries and consulted him. He said that the effervescence of soda ash was the reason. That is our experience. Between the charging of the raw materials and the glass being ready the only wastage is 10 lbs. of soda ash.

President.—Are you quite certain that this very large leakage that you cannot account for does not occur in the process of melting?

Mr. Sen.—We thought that probably there must be something wrong with the chambers and although they are guaranteed to be of 600, 800 or 500 lbs. capacity as a matter of fact the cubic content was either 400 or 500, so we wanted to test that and in so doing we had naturally to weigh every ounce of glass. We took the precise weight of the raw materials and then next morning when the glass was ready we took the whole liquid out and weighed it again.

President.—And you found out that the difference represented only 1½ per cent.?

Mr. Sen.—That is right. Then, as I said, we consulted the Industrial Chemist and he said effervescence of soda ash was the reason for the loss. I don't know if you have got any information from other factories that there is more effervescence. There is another matter. There are the cullets that attach themselves to the pipe after blowing. That weighs 75 lbs.; then 15 lbs. is pot cleaning. After the glass is ready there is a sort of cream on the mouth of the pot, that weighs 15 lbs. Then comes the pot bottom which is 20 lbs. and then comes effervescence which is 10 lbs. That makes a total of 120 lbs. for each pot of 600 lbs.

President.—That gives you a loss of 20 per cent.?

Mr. Sen.—Yes.

President.—That is apart from loss by breakage?

Mr. Sen.—Yes.

President.—This is the melted glass that you can use for purposes of manufacture?

Mr. Sen.—Yes, we can use this for manufacturing pressed glassware. We cannot afford to waste 120 lbs. of glass from each pot. We have paid for all the materials and we must utilise this 120 lbs. If we start press machines, we can utilise this glass. There won't be this wastage of 75 lbs. as pipe cullets, 15 lbs. as pot cleaning and other wastages which go to make this 120 lbs.

President.—How exactly would you use pressed glass?

Mr. Sen.—I could not tell you, because I have not succeeded in making pressed glass.

President.—Personally, looking at it as a layman I should say the glass that you cannot recover from the bottom of the pot is irrecoverable whether you want pressed glass or some other kind.

Mr. Sen.—Quite so.

President.—What about the glass that you lose in the pipe?

Mr. Sen.—I will get 75 lbs.

President.—How is it that you can utilise that for the pressed glass and not for blown glass.

Mr. Sen.—In a blown glass you have to make a bubble which is attached to the pipe. When an article is blown out certain portion is remaining fixed on to the pipe.

President.—I see your point. My point is this: if instead of making blown glass you are making pressed glass, then naturally you avoid the wastage in the pipe, because the pipe is not used.

Mr. Sen.—Quite right.

President.—The glass that you have actually lost in the pipe when you are making blown glass cannot be recovered for the purpose of making some other kind of glassware.

Mr. Sen.—Except by remelting.

President.—You use it as cullet?

Mr. Sen.—Yes, they are collected together.

President.—The question of pressed glassware is important in this respect that you avoid wastage.

Mr. Sen.—There are very important questions connected with that. The system of blowing that we have in this country is different from that of other countries. In other countries they have introduced a new system of blowing by which the wastage in the top and the bottom portions are reduced. Those portions which have to be cut out are reduced. Suppose we make hurricane lantern chimneys, certain portions which bulge out have to be cut out. If it is cut by machine there is practically no wastage. There the effort must be of a glass manufacturer to minimise the wastage, not to produce more broken glass but to produce more finished glass.

President.—Supposing for the sake of argument we accepted 20 per cent. as the loss in melting when you make blown glass, it could be reduced to say 15 per cent. if you make both blown and pressed glass.

Mr. Sen.—Yes.

President.—To that you add the loss by breakage of 15 per cent. Then you get the total loss of 30 per cent.

Mr. Sen.—Yes.

President.—That is roughly how you calculate?

Mr. Sen.—Yes.

President.—We can take it that the proportion of soda to sand that you give in this composition is the normal proportion that you use in your works?

Mr. Sen.—Yes.

President.—That is to say about 30 per cent. of the weight of sand?

Mr. Sen.—Yes.

President.—Have you any objection to giving us the prices of your sand, soda and lime?

Mr. Sen.—We have given the price of sand in answer to question 16.

Mr. Boag.—You have given only the freight.

President.—I want the price at the place of origin plus the cost of transport.

Mr. Sen.—We are buying at As. 10.6 per maund f.o.r. Dum Dum Cantonment.

President.—This Rs. 30 for cartage and Rs. 30 for loading and unloading have got to be added to f.o.r. figure.

Mr. Sen.—Rs. 60 have to be added on 517 maunds.

President.—Have you got the figure of cost of sand delivered at the works?

Mr. Sen.—No.

President.—I suppose we can work that out.

Mr. Sen.—Yes.

President.—What about your soda?

Mr. Sen.—We were buying at Rs. 140 a ton.

President.—That is Rs. 7 a cwt.

Mr. Sen.—It has increased just now to Rs. 148.

President.—Does that represent the cost at your works?

Mr. Sen.—Yes, delivered at our works. We arrange to take delivery in our lorries. That is their *ex-godown* rate.

President.—What about lime?

Mr. Sen.—We are buying lime at Rs. 1-12-0 per maund or Rs. 1-8-0 per maund.

President.—Would you mind looking it up and sending us the correct figure later on?

Mr. Sen.—I shall send you the correct figure.

President.—This temporary rebate which you got in 1924, how long did you have this?

Mr. Sen.—Only for a few months—6 or 7 months.

President.—How do you account for the sporadic generosity on the part of the railways?

Mr. Sen.—I cannot explain. It was withdrawn even without notice.

President.—That is the East Indian Railway?

Mr. Sen.—Yes. We approached the Manager and he said that he cannot give any more concession. We had been trying for a reduction in freight for coal and they gave us this concession for sand. It is a sort of an eyewash.

President.—It works out at As. 9 per ton of glass.

Mr. Sen.—Yes.

President.—There is very little in it.

Mr. Sen.—Yes.

Mr. Rahimtoola.—You got it without asking for it?

Mr. Sen.—We have been trying for a cheaper freight for all the raw materials we carry and a concession rate for our finished goods.

President.—At present all the crucibles that you are using are imported ones?

Mr. Sen.—Yes.

President.—You have not tried the crucibles made in Bengal?

Mr. Sen.—Yes, we have. They were successful in the beginning when they were at 700° temperature and when they were actually put into the main furnace, after 17½ hours they collapsed. Of course the process by which they were making was a different process, but they have taken up the line in right earnest. There would be no difficulty about crucibles.

President.—You are not in a position at present to speak from experience. They are still in the experimental stage.

Mr. Sen.—Yes, there is no reason to believe that it would not be possible for them to make it.

President.—In other parts of the country they are using crucibles made locally and I don't see why it should be impossible for you to do it.

Mr. Sen.—There would be no difficulty as regards crucibles. We are trying to eliminate soda ash also. That sounds something very peculiar and new. We are going to make this from the salt cake.

President.—Where do you get your salt cake?

Mr. Sen.—We can get big quantities of salt cake from Bengal Chemical people and from those who manufacture sulphuric acid.

President.—It is a by-product of hydrochloric acid.

Mr. Sen.—I don't know. I think it is a by-product of sulphuric acid.

President.—I should have thought that it would be rather difficult in India considering the small scale on which our chemical factories are being run now to get salt cake in sufficient quantities.

Mr. Sen.—Sulphuric acid is manufactured on a commercial basis in Bombay and in Bengal. There are two or three factories in Bengal.

President.—You don't know the total quantity that they are making.

Mr. Sen.—Even if we get 50 per cent., that will be enough.

President.—You can supplement your soda ash by salt cake, but then it will depend partly on the price that you have to pay for salt cake.

Mr. Sen.—That is very cheap.

President.—You have given here the price for crucibles as Rs. 54 and Rs. 42. Do these figures allow for breakages in transit?

Mr. Sen.—No.

President.—That is to say Rs. 54 is the price that you pay on the whole consignment.

Mr. Sen.—Yes.

President.—What breakages do you generally get in transit?

Mr. Sen.—If we are lucky, there is no breakage. We get 10 pieces at a time and if one piece is broken, the loss comes to 10 per cent.

President.—So that in taking your cost we have to add 10 per cent. to this figure.

Mr. Sen.—Yes. I think we have explained that in our replies to the questionnaire.

President.—This is the current price.

Mr. Sen.—Rs. 54 is the present price.

President.—The reduction in Japanese exchange recently must make a certain difference.

Mr. Sen.—It is very uncertain.

President.—All that I am trying to get at is that this Rs. 54 represents the price on Japanese exchange before the ban on the export of gold.

Mr. Sen.—No, it was last month.

President.—October?

Mr. Sen.—November. Rs. 54 is the latest price that we paid.

President.—Probably the price might be a little lower now.

Mr. Sen.—Yes.

President.—Exchange has come down to 157.

Mr. Sen.—Orders have been placed at this price.

President.—I understand that in most of these cases the invoices are made out in yen currency, so that the fluctuations in exchange fall upon you, is not that so?

Mr. Sen.—Yes.

President.—Are these figures that you give in answer to question 30 in rupees per month?

Mr. Sen.—Yes.

President.—I come to question 36. I should like you to explain to me how exactly you calculate the consumption of coal.

Mr. Sen.—I will explain to you our method. Whatever material, either raw material or coal is used, it is weighed before it is used. We know that coal is consumed in various departments; first in the furnace, second in the annealing chambers, third glory hole, fourth cutting and fifth in the boiler.

We know how much coal is being put in the furnace per day and every night. We know how much coal is used for the annealing chambers per day as also every night and so on. We weigh each time before coal is put into the furnace. We have standard baskets and we know the basket is weighing so much. If so many baskets of coal are used, we naturally conclude that so many maunds are consumed.

President.—That is the principal factor on which your calculations are made?

Mr. Sen.—Yes.

President.—May I take it that your calculation comes to this that you know how much coal goes into your furnace precisely?

Mr. Sen.—Yes.

President.—Supposing your furnace melts in the course of 24 hours say 2 tons of melted glass, you know in the course of that 24 hours into the furnace has gone say 3 tons of coal. The furnace has consumed 3 tons of coal. The furnace has melted 2 tons of glass. Therefore you know that the consumption of coal per ton of glass is $1\frac{1}{2}$. Is that mainly the method of calculation? It takes 24 hours for a furnace to melt glass. In the course of 24 hours if the furnace has consumed 3 tons of coal, the consumption of coal per quantity of melted glass that you get out of the furnace in 24 hours gives you the average figure

Mr. Sen.—That is right.

President.—That is the method of calculation?

Mr. Sen.—Yes.

President.—On that basis you calculate that one ton of melted glass means a consumption of $1\frac{1}{2}$ tons of coal.

Mr. Sen.—Yes.

President.—And another ton of coal for the finishing processes?

Mr. Sen.—Yes.

President.—Altogether therefore your calculation is that per ton of finished glass you consume $2\frac{1}{2}$ tons

Mr. Sen.—Yes.

President.—I should like before I go on to the cost statements to make quite sure that I understand the calculations precisely. Let me put it this way. For finishing one ton of glass you require one ton of coal.

Mr. Sen.—Yes.

President.—For melting one ton of glass in furnace, you require 1.5 tons of coal, is that right?

Mr. Sen.—Yes.

President.—The point on which I want to ask your opinion is this. You told me a little while ago that your furnace works continuously. The manipulation is done only during the day of one shift of 8 hours.

Mr. Sen.—Yes.

President.—Can you tell me as your factory is equipped at present whether you are able in the course of a working day of 8 hours to utilise the whole of the melted glass that you get in 24 hours?

Mr. Sen.—Yes, the whole of it. The glass that is ready inside the chambers, I must blow out. Unless of course for certain reasons that men do not come or it is absolutely impossible, in that case we leave out one or two pots; otherwise we must manufacture molten glass from all the 9 chambers.

President.—There is no lag at all between the production of melted glass and the manipulation of it as the factory works at present? I will tell you precisely what my difficulty is at present. If your furnace worked 24 hours and produced melted glass which was in excess of what your blowers and other workers in the factory could manipulate in the course of the working

day, then obviously it would mean that your furnace would be receiving more heat than it really deserves.

Mr. Sen.—No.

President.—A certain amount of coal, instead of actually melting would these merely prevent the glass from setting so to speak.

Mr. Sen.—Whatever molten glass we get ready in the morning or during the course of the day we finish the same day. All the 9 pots do not get ready all of a sudden. At 8 o'clock we get two or three chambers ready and during the course of the day others get ready and as they are ready we finish them, unless there are any technical reasons for not doing so. Supposing we require the liquid glass free from air bubble, we probably leave one pot to start early the following morning. Otherwise as a rule we finish all the pots the same day.

President.—This quantity of $1\frac{1}{2}$ tons of coal, is it actually calculated on the melted glass obtained or on the quantity of materials that go into the pots; in other words do you use $1\frac{1}{2}$ tons of coal per ton of melted glass or per ton of materials?

Mr. Sen.—Per ton of melted glass.

President.—Are you quite sure?

Mr. Sen.—I think so.

President.—I am rather doubtful. I will tell you why. If you look at your cost figures (page 13) you will find that the charges for coal are given as Rs. 36-8-0.

Mr. Sen.—I shall explain that. We have shown this per ton of glass. In this connection I want to tell you one thing. We have to get 5 tons of coal in order to utilise 3 or 4 tons. We are getting 150 tons of coal every month. We have to pay for 150 tons of coal—no matter whether I get 150 tons of coal or 120 tons of coal, 20 tons of rubble and 10 tons of dust. Our 150 tons have to be calculated on the weightment at the weigh-bridge and we may get 150 tons because as they are unloaded at the station something might be stolen on the way. All the same, the bill is for 150 tons and we have to calculate our costs on 150 tons of coal including rubble and dust.

President.—You have had sufficient experience of that. Generally what is the proportion of usable material that you get in the matter of coal? Would you mind looking that up and letting us know. I should like you to give me, according to your experience, the percentage of non-usable material in the coal that you get?

Mr. Sen.—It is most unfortunate, and I have to admit to my utter shame, that the orders placed with the European firms can be depended upon to give consistently satisfactory supplies. We have always been buying from Messrs. Andrew Yule and Company. Their prices were very high; so we purchased from other firms. The first supply was all right but the second supply was not satisfactory. Out of 19 tons we got 15 tons only of usable material. The construction of our furnace is such that we cannot use smaller sizes of coal.

President.—Could you use slack coal in your furnace?

Mr. Sen.—No. We cannot use even Jheria. We have to use only Ranigunj because the other coal clinkers.

President.—Unless you have some kind of mechanical equipment for using inferior grades of coal, you will have to throw them away?

Mr. Sen.—In a tank furnace, they can be used.

President.—What do you do with them?

Mr. Sen.—We re-sell them and get as much as we can. That is what we do. I don't know that I should tell you that.

President.—On the other hand if you made a contract with the Coal Company for superior grades of coal.

Mr. Sen.—Our contracts are for hand picked supplies, but they will give us any kind of loading.

President.—If you have such a large percentage as 10 per cent. haven't you got a right of action?

Mr. Sen.—We have the right of rejecting the whole wagon.

President.—You might make a note of that point and let us know later.

Mr. Sen.—Yes.

President.—Coming back to the question of coal consumption, that is also a point that you will please look up whether it is $1\frac{1}{4}$ tons of coal to one ton of materials or to one ton of melted glass?

Mr. Sen.—Yes.

President.—It does not refer to one ton of finished glass?

Mr. Sen.—No.

President.—Therefore in terms of finished glass the consumption of coal would be higher.

Mr. Sen.—Yes.

President.—So, we might have to add 20 per cent.

Mr. Sen.—I don't know whether that would be right.

President.—Make it 15 per cent.?

Mr. Sen.—Yes.

President.—This is really a question of breakage. As a matter of fact on your calculation you say that actual losses in melting are much smaller than the losses in the furnace in the pots and in the pipes?

Mr. Sen.—Yes.

President.—When you calculate one ton of melted glass do you make allowance for the loss in the pipes?

Mr. Sen.—That is one ton net. One ton of melted glass would not give one ton of finished glass.

President.—I take it that $\frac{1}{5}$ th of 1.5 tons would be represented by the wastage?

Mr. Sen.—Add 30 per cent. to that.

President.—That brings it to 2 tons of coal per ton of finished glass.

Mr. Sen.—Finished blown out articles.

President.—To that you have to add something for breakage?

Mr. Sen.—Yes.

President.—10 to 15 per cent.?

Mr. Sen.—Yes.

President.—That would be .3, which would bring it to 2.3?

Mr. Sen.—Yes.

President.—Does that make allowance for the initial heating of the furnace? Before you start a furnace you have to use a certain amount of coal for initial heating?

Mr. Sen.—There is a difference in procedure now in our factory. Once we started the furnace we ran it continuously for five or six months and if the pots were breaking we were changing the pots. That is not our system now. We light up the furnace now and as soon as we feel that the pots start breaking, we stop it and by that time another furnace is ready. We do not change the pots now because we have seen from experience that by doing so we damage the other pots also. So every month we have to start a new furnace. There is the initial cost of starting a furnace. Although we do not get glass out of that, we have to burn coal.

President.—You have made no allowance for that in this?

Mr. Sen.—No.

President.—You have to add a certain quantity of coal to the consumption figure which the glass ought to bear?

Mr. Sen.—Yes.

President.—Then there is another point. One ton of coal that you say is required for finishing one ton of glass, is that for finishing one ton of molten glass or making one ton of finished glass?

Mr. Sen.—We have no account for that. Now I see the point which you are driving at. We have not taken it in that way. So I could not tell you.

President.—If it is one ton of melted glass then the figure of one ton of coal has to be raised in terms of finished glass?

Mr. Sen.—Yes.

President.—So that, if you take the figure of 3·5 for initial heating, it may come to very nearly four tons.

Mr. Sen.—Much more than that. The first procedure is that we join the furnace with chimneys. We heat the furnace for three or four days. Then we join the chimney with the furnace. We must have two or three tons of coal every day and that goes on for four days. Practically 15 tons of coal has to be used on the initial heating of furnace every month.

President.—That is a big item.

Mr. Sen.—Yes. That escaped my notice.

President.—That explains the position more or less?

Mr. Sen.—Yes.

President.—With regard to Question 44, can you tell me approximately taking your experience in these two or three years, what proportion of your output is sold in Calcutta and how much up country?

Mr. Sen.—In the case of ordinary articles, about 95 or 97 per cent. is sold in Calcutta.

President.—By ordinary articles you mean globes, etc.?

Mr. Sen.—That is right. On the bottles that we are making we have not got to bear freight. They are for distribution throughout India. We supply them in Calcutta and they pay the freight. As regards ordinary articles about 97 per cent. is sold in the Calcutta area. This question of distribution of goods in the mufassal market had been engaging our attention for the last few years. We are absolutely—it is no good denying the fact—within the hardest grip of the middlemen here. They tell us what they like and dictate whatever the prices are. But if we could distribute our goods in the mufassal markets and if the mufassal people who will have to come to the Calcutta market ask for the goods manufactured by the Bengal Glass Works, we will have a certain position. Do you follow my point?

President.—I think I do. You are now completely in the hands of the established dealers in the Calcutta market?

Mr. Sen.—Yes, in the hands of the wholesale dealers.

President.—If they choose to give you orders, you get.

Mr. Sen.—Yes. The same is the case in the matter of price.

President.—The amount of orders that you get and the price that you get depend very largely on the terms which are laid down by the established dealers in the Calcutta market?

Mr. Sen.—Yes.

President.—If on the other hand it is possible for you to open up new markets up country, then you feel that you would not be so completely at the mercy of middlemen as you are here now because the upcountry middlemen are not so powerfully organised.

Mr. Sen.—That is one point and the second point is this. I am taking the Presidency of Bengal separately. Calcutta is the first market in Bengal. From mufassal markets all mufassal dealers have to come to Calcutta. Either they come here or they send their orders to Calcutta. Now if our goods are already introduced in the mufassal market and if they feel that the quality of our goods is tolerable, then they will write to these people

and ask for the goods manufactured by the Bengal Glass Works instead of Japanese goods. If 20 people come and ask for the products of the Bengal Glass Works, then naturally these dealers have to keep a stock of our goods. Then I can tell them "These are my rules. If you are going to take my things, you must accept them and give me a signed receipt (which they don't do now). You must also pay me within a certain time". If I cannot dictate to the middlemen, I have to follow whatever they dictate to us. We cannot distribute our goods in the mufassal market because of the initial difficulties that we have. The packing charges are prohibitive; the freight is prohibitive and the breakages are very heavy.

President.—It would help your sales if you are able to get direct introduction to your purchasers. Once you do that, the mufassal purchaser would indicate in certain cases a preference for your goods.

Mr. Sen.—Quite.

President.—In that way you may be able to get a hold on the mufassal dealers who operate in the Calcutta market.

Mr. Sen.—Yes.

President.—Not having had any direct introduction to up country markets you are completely at the mercy of dealers who are here in Calcutta.

Mr. Sen.—Absolutely.

President.—These figures that you give in reply to Question 49 are they rupees?

Mr. Sen.—Yes.

President.—Are they the latest prices?

Mr. Sen.—No.

President.—Are they fairly recent?

Mr. Sen.—They are the average prices of the last five years.

President.—It is really the arithmetical average that you have calculated over five years?

Mr. Sen.—More or less.

President.—Do you know what the current prices are for these various kinds of glassware?

Mr. Sen.—Yes.

President.—Are they lower than these?

Mr. Sen.—No. But the globes have gone down.

President.—What are they now?

Mr. Sen.—Rs. 17 to Rs. 18.

President.—What about others?

Mr. Sen.—The prices of chimneys are the same. They are the latest prices. Our prices include packing charges.

President.—That is to say they are comparable prices. What I mean is your prices are prices f.o.r. Calcutta for goods packed and the import prices are c.i.f. prices and you add duty and landing charges to c.i.f. prices and a small allowance for cartage.

Mr. Sen.—Yes.

President.—Would that give you f.o.r. import price?

Mr. Sen.—To that you have to add 25 per cent.

President.—That gives you the price delivered at the port. You have got to make a small allowance for cartage from jetty to station and you have to add also the importers' commission. Generally we can take 2½ per cent. as commission. I am inclined to think that if you add 2½ per cent. plus 20 per cent., plus 5 per cent. and a small allowance for cartage you would put the two prices exactly on a comparable basis.

Mr. Sen.—Yes.

President.—In answer to Question 57 you mention “ issued and subscribed capital Rs. 3,13,927-8-0 and fully paid up capital Rs. 69,000 ” and you add the two. What does that mean?

Mr. Sen.—Rs. 69,000 worth of shares were issued to the Bombay people.

President.—That is what you mean by fully paid up?

Mr. Sen.—Yes.

President.—“ Issued and subscribed capital ”—has that all been paid up?

Mr. Sen.—No. Rs. 5 was paid up, on application Rs. 2-8-0 and Rs. 2-8-0 on allotment.

President.—Can you tell me, including the amount you have allotted to the Managing Agents as a consideration for the purchase of the works, what is the total value at present price of your paid up share capital?

Mr. Sen.—70,000 shares at Rs. 2 fully paid up; that is Rs. 1,40,000.

President.—That represents the whole paid up capital to-day?

Mr. Sen.—Yes.

Mr. Rahimtoola.—Including the Rs. 69,000?

Mr. Sen.—Yes.

Mr. Rahimtoola.—As far as I understand it the fully paid up capital was given to Peer Mohamed Glass Works before you took it up at the rate of Rs. 5 fully paid up.

Mr. Sen.—Then it was Rs. 10 fully paid up. Application money was Rs. 2-8-0 and allotment money Rs. 2-8-0 for ordinary shareholders but in consideration of purchasing the Bombay factory we allotted to the vendor Rs. 69,000 worth of fully paid up shares. The original value of the shares stood at Rs. 10.

Mr. Rahimtoola.—And you did not call up the other Rs. 5 from the other shareholders and you reduced the value to Rs. 2?

Mr. Sen.—Yes, and some adjustments had to be made and the shares stand to-day at Rs. 2.

Mr. Rahimtoola.—And this Rs. 1,40,000 include Rs. 69,000?

Mr. Sen.—Yes.

Mr. Rahimtoola.—So that the value has gone down from Rs. 10 to Rs. 2?

Mr. Sen.—Yes.

President.—Do you want the cost statements to be treated as confidential?

Mr. Sen.—Yes, if there is no objection.

Mr. Rahimtoola.—In answer to Question 4 you say that you are now working only 90,000 lbs. in course of 26 working days.

Mr. Sen.—Yes.

Mr. Rahimtoola.—Since how long have you been working 90,000 lbs.?

Mr. Sen.—We knew that we had been working 90,000 lbs. since last year. This production has been going on for the last two or three years.

Mr. Rahimtoola.—The reason why I am asking you is that in your answer to Question 5 the value of the goods turned out varies very considerably.

Mr. Sen.—The value has nothing to do with the production. I get an order to the value of Rs. 50,000. The order is for 100 gross. It all depends on the nature of the articles that we make.

Mr. Rahimtoola.—And the price fetched by the particular article?

Mr. Sen.—Yes.

Mr. Rahimtoola.—How do you calculate the weight of the article?

Mr. Sen.—On the weight of the glass.

Mr. Rahimtoola.—The weight of the glass turned out is 90,000 lbs.?

Mr. Sen.—Yes.

Mr. Rahimtoola.—Therefore I should like to know why there should be a difference.

Mr. Sen.—With 90,000 lbs. of glass if we had made electric shades, probably we would have got Rs. 2 lakhs; if we had made electric bulbs, we would have got Rs. 3 lakhs and if we had made hurricane lantern globes, we would have got only Rs. 1 lakh.

Mr. Rahimtoola.—Therefore it depends on the nature of the articles that you manufacture and the price that you get for the same,

Mr. Sen.—Yes.

Mr. Rahimtoola.—Therefore the value is immaterial as far as we are concerned.

Mr. Sen.—We have been absolutely going the wrong way. We have been going with the calculation of prices. Prices can be of no concern to us unless we know the weight.

Mr. Rahimtoola.—Which is more profitable for you to turn out at the present juncture? According to the statement given here in one year 90,000 lbs. of glass was valued at Rs. 1,49,000 in this year. I would like to know whether you are concentrating on such articles as would fetch you better price or whether you are simply at the mercy of the traders.

Mr. Sen.—We have bought several things for starting the press machine and other machinery for developing stoppered jars just as we have done in the case of hurricane chimneys. We cannot say that we would be in a position to do it just now. We have to depend on the nature of the orders that we get.

Mr. Rahimtoola.—There is one point I want to ask you as regards the selection of factories. You are more or less of opinion that in selection the most important factor to be taken into consideration is the market in India. The question is between a factory site near the raw materials *versus* the market.

Mr. Sen.—Yes.

Mr. Rahimtoola.—According to you, the reason why you selected the market for the site is due to the exorbitant rates of freight.

Mr. Sen.—Yes, and also the packing charges and difficulties of transit. I will explain to you. One gross of hurricane lantern chimneys shipped from Tilbury Docks to Calcutta would probably cost half of what it would cost us to send one gross of ordinary hurricane lantern chimneys from Calcutta to Patna. If we got from England one gross of hurricane lantern chimneys, probably there would be one or two breakages, whereas in the other case there would be 24 breakages. It is the rough handling combined with high cost of transport that is responsible for this state of affairs.

Mr. Rahimtoola.—When you are selecting a site near the market you have got to take into consideration the freights that you will have to pay on the different raw materials that you will have to import.

Mr. Sen.—What is the percentage?

Mr. Rahimtoola.—That is why I am asking you. As regards freight it is a distinct advantage to you to prefer the market as against the raw materials.

Mr. Sen.—Our idea is that it is the market which ought to be the deciding factor in fixing up a site for a glass factory.

Mr. Rahimtoola.—In arriving at that conclusion you have taken into consideration the question of freight on raw materials as against the shipment of goods.

Mr. Sen.—I don't quite follow you.

Mr. Rahimtoola.—You have got to pay a certain amount of freight on your raw materials which are not near your factory, but which you have to bring. As against that you will have to pay freight on the finished goods from your factory to the market.

Mr. Sen.—We have to bring raw materials to the value of Rs. 4,000. We have to sell goods to the value of Rs. 50,000.

Mr. Rahimtoola.—Therefore you are in a position of advantage in the matter of freight.

Mr. Sen.—Yes.

Mr. Rahimtoola.—In answer to Question 8 you complain about not being paid the import price more or less for the goods. You say “the insistence of traders in India on lower prices for Indian goods . . .”. Are you getting the price equal to the quality that you turn out?

Mr. Sen.—Our hurricane lantern globes and chimneys can be very favourably compared with the imported ones. Our stoppered jars are in no way inferior.

Mr. Rahimtoola.—The reason why the dealer pays more for the imported article and pays less for you is that he has got to take into consideration the freight and other charges which the imported articles bear when they come on the market?

Mr. Sen.—And also they make more profit on the imported article. Supposing there is a shortage of hurricane lantern globes, the dealer will take the fullest advantage of the market, because it will take not less than two months before a fresh shipment of hurricane lantern globes can come into the market, but with us if there is any shortage to-day, within two days we will dump the market with globes. Therefore the dealer cannot take advantage of the fluctuations.

Mr. Rahimtoola.—Does an ordinary man who goes to the market to buy things easily distinguish between European made and Indian made goods?

Mr. Sen.—So far as these articles are concerned, there is not very much difference.

Mr. Rahimtoola.—He need not say that any particular article is Indian made.

Mr. Sen.—As a matter of fact these people are insisting on not putting our names so that they might sell them as imported ones.

Mr. Rahimtoola.—How is it possible to make your brand known unless you sell your goods as Bengal Glass Works' goods?

Mr. Sen.—Unless you make it impossible for them to import, that will never happen. If you make the price of Indian made hurricane lantern globes 6 annas a piece, and that of the Japanese annas 12, they will never think of importing, because then people will not be able to afford to pay annas 12 a chimney. You have got to do it that way. We want a prohibitive duty. This is done in all the countries in the world.

Mr. Rahimtoola.—Does not that raise the question of penalising the consumer?

Mr. Sen.—Why?

Mr. Rahimtoola.—Because he will have to pay more.

Mr. Sen.—Those things which we are manufacturing are as good as the imported ones.

Mr. Rahimtoola.—When you raise the price of imported article by a duty, you will get the necessary advantage of the increase and therefore I will have to pay more than I am paying to-day.

Mr. Sen.—He is paying more for the imported goods as well.

Mr. Rahimtoola.—Not necessarily.

Mr. Sen.—If he cares to buy the imported goods, he will have to pay more. In a discussion about the question of industries, have you got to

see first the interests of the industries or those of the people who buy these goods?

Mr. Rahimtoola.—We have to see both. The Tariff Board has got to see both. Whilst protecting the industry we have to see that we are not necessarily penalising the consumer. We cannot protect the one and neglect the other.

Mr. Rahimtoola.—As regards Bengal Potteries, Limited, has your Company any connection with that firm?

Mr. Sen.—No.

Mr. Rahimtoola.—The Managing Agents also have no connection?

Mr. Sen.—No.

Mr. Rahimtoola.—It is an independent thing?

Mr. Sen.—Yes. I happen to be a Director in both these concerns.

Mr. Rahimtoola.—This Company has not been able to produce crucibles to your satisfaction?

Mr. Sen.—They have not. The first experiment has failed.

Mr. Rahimtoola.—Since how long the Bengal Potteries Limited have started working?

Mr. Sen.—For the last 30 years. They have never made these things. It is I that gave them the idea. What is the use of importing them from Japan and America when these could be easily manufactured in India?

Mr. Rahimtoola.—In answer to Question No. 29, you say "we have to contend with unfavourable climatic conditions for about 3 months during the year". How far does it affect your labour?

Mr. Sen.—You mean the physique of the labour?

Mr. Rahimtoola.—Yes.

Mr. Sen.—They are used to it. They don't feel it. The heat is rather much and it is offensive only for a week or 10 days. During that period we work during the night.

Mr. Rahimtoola.—Has it any effect on the molten glass?

Mr. Sen.—Absolutely none.

Mr. Rahimtoola.—In answer to Question 45 you have given the freight rates applicable to glassware. Is that first class rate still in force?

Mr. Sen.—There are six different classes of rates for glass. First class rate is 42 pies per maund per mile regarding the quality of glass.

Mr. Rahimtoola.—I would like to know whether there is any railway which charges you first class rate.

Mr. Sen.—Yes. First class rate is for globes. It is on the different varieties of articles. The rate for globes is first glass; the rate for tumblers is second class and so on. Bottles come under the last class. These are the various classifications for freight rates.

President.—It is, the other way about, 38 pies per maund per mile first class and 42 pies per maund per mile for second class.

Mr. Boag.—The freight on bottles is lower than the freight on globes?

Mr. Sen.—Yes.

Mr. Rahimtoola.—I am not satisfied with the answer you have given here regarding the freight. The question put to you was: "What are the present rates of railway freight applicable to glassware. Have you any advantage in this respect over imported glassware?" You have said: "We enjoy no advantages in freight concession nor the imported glassware get any favourable consideration on gross weight including packing materials." I would like to know what you mean by that.

Mr. Sen.—We have taken both the questions together. Question 45 (b) has also come in.

Mr. Rahimtoola.—The freight charged on Indian made goods and imported goods is the same?

Mr. Sen.—Yes, so far as glassware is concerned.

Mr. Rahimtoola.—In answer to Question 51, you have made a statement that the working of the factories entirely depends upon the Government tenders.

Mr. Sen.—Yes.

Mr. Rahimtoola.—You say: "The successful tenderer for the present year trains his labour, makes certain improvements in quality and by the time he is ready the year is finished and contract is completed and probably in the next year the order goes to some other competing firm leaving the previous year's contractor to disband his trained labour, etc."

Mr. Sen.—If he doesn't get the tender.

Mr. Rahimtoola.—That means he is at the mercy of the Government contract.

Mr. Sen.—That has been made a ground for giving us running contracts.

Mr. Rohimtoola.—The point is you cannot expect to run a factory for a number of years with the Government contract in view. The contracts will have to fluctuate. You have got to seek other markets.

Mr. Sen.—Government is probably going to introduce running contracts for a period of years.

Mr. Rohimtoola.—There will be annual tenders.

Mr. Sen.—Take for instance the question of the supply of battery jars to Government. We are told by Government to-day that the glass must stand at so much pressure. We have to make experiments for two or three months and then if we succeed, we supply. Then next year the orders do not come to us though our men are trained to do this business. When the present contractor is over, we don't get the contract for next year. Those men who have been specifically trained to manufacture and finish certain things have got to be disbanded if we don't get this order next year. Therefore Government should give us a contract for a period of years, so that we can keep our men who are already trained for a period of two or three years at least.

Mr. Rahimtoola.—They give you work for one year?

Mr. Sen.—Yes, they do.

Mr. Rahimtoola.—Here is a general statement. A statement like that does not speak well of the factories which say they will have to close down the factories if they don't get the Government contract.

Mr. Sen.—I have not suggested the closing of the factories, but I said that those men who had been trained would have to be disbanded.

Mr. Rahimtoola.—That is to say you are producing only such articles as Government would buy. I want to know whether outside people are buying.

Mr. Sen.—May I read the answer? "The comparative statement attached herewith will show the nature of purchases made by the Government or the Railway or other Corporate bodies. The nature of such purchases are so irregular that we can neither count upon them nor can decide upon the outlay of fresh capital or make other arrangements to improve the quality. Purchases are made on monthly or annual tenders. The successful tenderer for the present year trains his labour, makes certain improvements in quality and by the time he is ready the year is finished and contract is completed and probably in the next year the order goes to some other competing firm leaving the previous year's contractor to disband the trained labour, etc."

Mr. Hodkin.—That is the usual custom everywhere.

Mr. Sen.—In the Indian Stores Department we have been trying and we have convinced the Controller of Stores to a certain extent. This is the practical difficulty. If we have any technical difficulty we go on making experiments and after a period we succeed and then by another six months

the order is completed. In the next year if the order goes to somebody else, we have no need for the labour which we have trained.

Mr. Hodkin.—That applies everywhere to every country in the world.

Mr. Rahimtoola.—I only want to understand one point regarding the glassware that you turn out. You know the value of the imported glassware is about Rs. 2½ crores. I want to know for what class of glassware you want protection. Do you want protection for bottles and phials?

Mr. Sen.—Yes, and for pressed glass.

Mr. Rahimtoola.—Do you want protection for funnels, globes and glass parts of lamps?

Mr. Sen.—Yes, we want protection.

Mr. Rahimtoola.—I want you to classify them.

Mr. Sen.—May I read what we have said in this connection on page 10. We say "The import duty on blown glass such as globes, chimneys, tumblers, etc., pressed glass articles such as salt cellar, oil cups, pressed tumblers, pressed dishes, etc., glass manufactured by handworking process such as electric shades, gas shades, water jugs, etc., bottles of all kinds should be increased to at least 50 per cent."

Mr. Rahimtoola.—That does not help me. We have a list prepared by the Customs who have distributed the various items under the following heads. The first heading is "bottles and phials including soda water bottles". You want bottles and phials of all sizes to be protected?

Mr. Sen.—Yes.

Mr. Rahimtoola.—Then there is a heading called "Funnels, globes and glass parts of lamps".

Mr. Sen.—Yes. They are all blown glass.

Mr. Rahimtoola.—What about scientific glassware?

Mr. Sen.—We don't want protection as regards scientific glassware.

Mr. Rahimtoola.—Sheets and plates?

Mr. Sen.—No.

Mr. Rahimtoola.—What about tableware?

Mr. Sen.—We don't want protection for that at present.

Mr. Rahimtoola.—Then there is a heading called "Other glassware"?

Mr. Sen.—The electric shades may come under that head.

President.—Are you sure that they do not come under lampware?

Mr. Sen.—I shall verify that and let you know.

Mr. Rahimtoola.—You want the duty to be increased by 50 per cent.?

Mr. Sen.—Yes.

Mr. Rahimtoola.—You mean over the present duty?

Mr. Sen.—No, I only want another 25 per cent. to be added to the surcharge.

Mr. Boag.—Does your Company publish balance sheets?

Mr. Sen.—Certainly.

Mr. Boag.—Could you let us have copies of the balance sheets for the last five years?

Mr. Sen.—Yes.

Mr. Boag.—With regard to your reply to Question 30, to what extent is your labour paid daily and monthly and to what extent by piece-work?

Mr. Sen.—There is no piece-work. They are all paid monthly.

Mr. Boag.—You have mentioned in two places that you did not succeed in working the bottle machines and also that you did not succeed in working presses.

Mr. Sen.—That is right.

Mr. Boag.—Could you let us know shortly why you could not work these?

Mr. Sen.—The experiments regarding the bottle machines were started about 9 years back. Neither we nor our labour were properly trained. There was some difficulty because the quality of the glass that was required for pressing machines or for bottle blowing machines was not the quality that we were making. We did not know that at that time.

Mr. Boag.—You tried to use ordinary glass?

Mr. Sen.—That was the difficulty. Then of course we left that out because we thought we had better do it in the usual way and try machines subsequently.

Mr. Boag.—The only other thing I want to ask you is about your answer to Question 64, viz., the question of depreciation on your furnaces. Do you think that you should be allowed to reckon your depreciation at 100 per cent. on your furnace?

Mr. Sen.—Yes, because we are taking that into our costs.

Mr. Boag.—You are claiming to make a renewal of your furnace every year if you want depreciation to be allowed at 100 per cent.?

Mr. Sen.—The most important point is that the maintenance charges of furnaces are taken in and calculated in the cost of production.

Mr. Boag.—I don't quite understand your point.

Mr. Sen.—In a furnace there is a central block which is a sort of permanent structure. The other parts of the furnace—the smaller blocks—have got to be rebuilt after a period. The life of one furnace we have calculated as one year and over and above that after we have finished working one and started another we have to undertake repairs. These maintenance charges go into our costs.

Mr. Boag.—You mean works expenditure?

Mr. Sen.—Yes.

President.—Once you do that, it is unnecessary for you to allow for depreciation.

Mr. Sen.—The furnace is fully depreciated.

President.—If you look at the item "Furnace upkeep Rs. 2,162" on page 12, that covers all your expenditure on the furnace during the year?

Mr. Sen.—Yes. They are maintenance charges.

President.—Practically that is 100 per cent. depreciation?

Mr. Sen.—No.

President.—That is to say, in addition to the amount that you enter in your works expenditure on account of repairs to your furnace, have you got to make allowance for depreciation?

Mr. Sen.—This is what we have said in our replies to the questionnaire:—

"Regarding furnace, the percentage of depreciation allowed by income-tax authorities are not in any way reasonable or suitable because in furnace there are two heads—(i) the main structure of furnace in which we agree with them, but (ii) furnace upkeep, i.e., expenses or charges required for maintenance. Repair and Renewal of furnace we usually take them as manufacturing charges hence depreciation comes to 100 per cent. as these go into the account of cost of production."

Mr. Boag.—Surely the depreciation applies to your No. (i), that is, the main structure of the furnace.

Mr. Sen.—In the Balance Sheet this Rs. 2,000 is not shown separately as the maintenance charge. It goes into the furnace account.

Mr. Boag.—Is not the Rs. 2,000—shewn in the profit and loss account?

Mr. Sen.—Yes. It is not shewn separately as maintenance charge. We do not know what portion of it is furnace upkeep and what is furnace building account.

Mr. Boag.—To revert to this answer of yours to Question 64 (a) what do you claim to be the life of the main structure of your furnace?

Mr. Sen.—One year.

Mr. Boag.—Not more than one year?

Mr. Sen.—That is the average.

Mr. Boag.—If that is so, 10 per cent. depreciation does not meet your case.

Mr. Sen.—No.

Mr. Hodkin.—In answer to Question 5, you say that it is impossible to state the quantitative production.

Mr. Sen.—Yes.

Mr. Hodkin.—I understood you to tell the President that you could give some information with regard to the numbers of articles that were broken in various processes and so on.

Mr. Sen.—Quite.

Mr. Hodkin.—But not the total number of articles produced?

Mr. Sen.—It would be such a lengthy affair.

Mr. Hodkin.—Do you sell your goods by numbers or by weight?

Mr. Sen.—By numbers.

Mr. Hodkin.—You do not know how many you produce but you know how many you sell?

Mr. Sen.—For five years you wanted the details. If we were to supply you with all those details, it would be a very lengthy affair.

Mr. Hodkin.—You have got the details?

Mr. Sen.—Yes.

Mr. Hodkin.—You say that you use unslaked lime. You mean burnt lime?

Mr. Sen.—We use slaked lime but we buy unslaked lime.

Mr. Hodkin.—When you were talking about the loss by effervescence you said that you lost 10 lbs. on 600 lbs. That means about $1\frac{1}{2}$ per cent.

Mr. Sen.—Yes.

Mr. Hodkin.—You say it is really only soda ash. You will lose over 250 lbs. alone in gas out of 650 lbs. of soda ash you put in. 250 on 3,000 lbs. of batch means over 8 per cent. on soda ash alone.

Mr. Sen.—675 lbs. we don't put in each pot.

Mr. Hodkin.—That is in your mixture per ton of glass?

Mr. Sen.—Yes.

Mr. Hodkin.—Of that 675 lbs. you will actually lose 250 lbs. in the form of gas?

Mr. Sen.—Does it work out in that way.

Mr. Hodkin.—Yes. It is a matter of Chemistry.

Mr. Sen.—I am no chemist myself. I have put down 10 lbs. on 650 lbs.

Mr. Hodkin.—I say you will lose 250 lbs. in soda ash alone. I have calculated that on your batch you lose at least 14 per cent. during the melting.

Mr. Sen.—You consider that the loss of 10 lbs. of soda ash is a correct figure or not?

Mr. Hodkin.—It is entirely wrong. Your loss on the whole batch must be 14 per cent. The loss that you cannot account for is the difference between $1\frac{1}{2}$ per cent. on which you have calculated and the actual which will be something in the region of 14 per cent.

With regard to raw materials you say that you have to import cryolite, fluorspar and tin ash in your reply to Question 18. They are for opal glass?

Mr. Sen.—Yes.

Mr. Hodkin.—Do you manufacture very much of that?

Mr. Sen.—Not very much. We do some.

Mr. Hodkin.—You buy materials in small quantities and therefore have to pay very high prices for them.

Mr. Sen.—Yes.

Mr. Hodkin.—Your price of cryolite comes to £107 per ton, whereas you can buy at £55 in England. Fluorspar you can buy at £13 instead of at £60-19-0 and tin ash at £170 instead of at £600. You said that you were going to use salt cake instead of soda ash.

Mr. Sen.—Yes.

Mr. Hodkin.—Do you think that it is a new idea?

Mr. Sen.—We think so.

Mr. Hodkin.—It is very ancient and is being given up, particularly for manufacture in pots.

In answer to Question 23 you mention that the life of the furnace refractory materials is 3 months and yet you have to start a new furnace every month, so that the life of the refractory materials is one month.

Mr. Sen.—Yes.

Mr. Hodkin.—That brings in the question of coal. I think you will find that your consumption of coal per ton of finished glass will work out more or less in the way of your cost figure. Your cost figure has 5½ tons of coal. If you make allowance for rubble and dust coal, it will come down to 4 tons.

Why do you continue to use your Japanese furnace?

Mr. Sen.—We have been using it from the beginning.

Mr. Hodkin.—Why don't you change?

Mr. Sen.—We have to make tank furnaces with gas producers. That means an outlay of capital which we cannot afford.

Mr. Hodkin.—You have not done it merely because you cannot afford the capital outlay?

Mr. Sen.—Yes.

Mr. Hodkin.—You said that you could not work your bottle or press machines because the quality of the glass you were making was not suitable?

Mr. Sen.—Yes.

Mr. Hodkin.—Why don't you alter the quality of the glass?

Mr. Sen.—We are now doing it. We are going to introduce machinery now.

Mr. Hodkin.—And you will be able to change your glass all right?

Mr. Sen.—Yes.

Calcutta Glass and Silicate Works, Ltd., Calcutta.

A.—WRITTEN.

(1) *Letter No. 6225/31, dated the 10th December, 1931.*

In compliance with your letter No. 710, dated the 21st November, 1931, we beg to enclose herewith six spare copies of our representation, dated the 16th November, 1931, sent direct to Bombay together with six copies of replies to your questionnaire in details as far as our knowledge goes.

Enclosure.

Introduction.

The object of this report is to present before the Government and the public as well in a collected form the immense and varied difficulties that stand at the way of development of the Glass Industry in this country and also to show that whether they are of such a nature as to justify our claim for Tariff protection.

It is necessary for us here to enter in details into the merits of the Tariff concession. It has been claimed even by such highly development glass producing countries as United States of America and Japan, etc., and this fully justifies the cause of the manufacturers in a country where the industry itself is a still in an infant stage.

The Calcutta Glass and Silicate Works, Ltd., at present moment stands face to face with foreign competition in such a way that it has been compelled on account of political situations and present economic conditions to take up the cause of Glass Industry in India and has ventured to approach Government with prayers for the immediate remedy of this prevailing distress. No pains has been spared to make their representations to Government as vivid and impressive as possible. In getting up this report therefore we have distributed the table of contents under the heads indexed herein. We have freely consulted Government and other publications and the grounds put forward in support of our claim are mostly quotations from Authorities that cannot be challenged at all. The Company may therefore hopefully look forward for the success of their endeavour and rest assured of State as well as public co-operation in their noble enterprise which when crowned with success will redound to the credit of our country.

A.—Representation.

With reference to the Government of India Notification No. 458-T. (2), dated at Simla, the 20th October, 1931, we have the honour to submit for the consideration of the Tariff Board our representation regarding protection to the Glass Industry in the country. In our opinion before going in details about the present condition of Glass Industry in India and to what extent it requires protection a brief history of this particular Industry in India should be sketched.

The Glass Industry in India is not absolutely a new one. The word "kach" (glass) is found mentioned very often in old Sanskrit Literature during the last two thousand years, signifying the knowledge of glass making among the ancient Hindus although adequate records are not available as regards its manufacture, nor have ancient samples and relics been systematically preserved. Glazed tiles were used for flooring and wall decorations even in the twelfth and thirteenth centuries and samples of this kind of work can be seen on buildings of that period. The manufacture of glass bangles and beads was practised in very ancient times and the authentic existence of this can be traced as far back as the last six hundred years. These were made in the province of Agra and Oudh in the north, in the province of Gujrat and in a few places in the south. The glass was melted

in small clay pots on wood or charcoal fire, and the bangles were made by gathering a small quantity of glass at the end of a steel rod, and turning the rod by hand and expanding the soft bead of glass into a ring, which was afterwards placed on a clay cone and further expanded to the proper size. Even to-day the demand for these bangles is met by a system of indigenous household industry. Every Indian woman wears at least two or three bangles round her wrist and these form a necessary ornament of a married woman.

There are at present many factories in India on a modern scale, turning out hundreds of tons of coloured glass in order to supply the demands of the bangle makers, who buy it in the form of cakes or blocks and remelt it in their own glass oven, but now prefer to buy from factories. The household industry also produces small phials, lamps and perfume bottles, but these are much inferior in quality.

In India Glass factories on a modern system date back only to the last sixty years or so. They are organized with Indian capital but were generally managed by Austrian or German experts. The history of these factories has been one of continuous struggle against various difficulties. The greatest difficulty was to get proper technical help. The training of local labour also had to be arranged for. The so-called experts were in some cases mere adventurers, who worked only during the construction of the factory and went away even before starting work. Another man who was recruited in his place probably condemned the work done by his predecessors and construction had to be substantially altered.

The experts were not generally willing to train Indian workmen, and in some cases, where they were willing, the proprietors of the factory would not stand the expense of training the labour and waiting until it started paying back. The people who put in their money invested it more from patriotic enthusiasm than from a purely business motive. The lack of technical knowledge on the part of the promoters was a standing obstacle to the progress of the factories and the industry in general.

Then, again, the high temperature during the summer months caused many of the European experts to quit their jobs and no adequate arrangement of cooling by artificial means was adopted in any factory. This caused slackness even among the Indian workmen and plants had to be shut down during the hot season. If Indian works could adopt the air circulation system which is used in the Tata Iron Works, the factories could be worked all the year round.

One great cause of the failure in all these factories was the want of Government protection or direct help, especially in the beginning, against outside competition. India owing to her peculiar political situation, has been unfortunately a dumping ground for foreign manufactured goods and unless a system or protective tariff is devised to safeguard industries within her own borders, she will continue to be the happy hunting ground of foreign adventurers to her own detriment.

The goods turned out at present in the Indian factories are lamp chimneys and globes, tumblers, pressed-ware window glass and bottles. There is no doubt that the factories at present are not working on such a scale as would enable them to meet the full demand, yet they have inspired confidence among the capitalists and big plants are now to be expected on most modern lines.

Though India abounds in raw materials for the glass industry these have not as yet been properly investigated. There are good sand deposits in the north, in Gujrat and in the Mysore and in the Madras Presidency and the United Provinces. Besides there is plenty of soft sandstone and quartz distributed all over the country. There is a suitable supply of limestone also well distributed. India produces the largest quantities of manganese in the world. Nitre is produced in the United Provinces. Soda, from the Reh deposits and also from the lakes in Rajputana and Central Provinces is awaiting investigation. At present English Soda is being

used in glass making, but there is hopeful news that soda is being manufactured in India. The fuel used is bituminous coal from Bengal and the Central Provinces. Wood is used in two or three factories.

India imports about twenty million rupees worth of glass every year from various countries such as England, France, Belgium, Austria, Japan and the United States. Before the War Austria-Hungary ranked first on account of its sales of glass bangles and also took a prominent part in the trade of lamp chimneys. Among exports from Germany were bottles, lamp, glasses and false pearls. The United Kingdom monopolized the trade in soda bottles and also exported in large quantities bottles and phials, sheet and plate glass and tableware.

The supplies from Belgium consisted of lamp chimneys, pressed tumblers and window-glass.

Japan to-day holds a very prominent position in her exports of glass to India and has generally taken the place of Germany, Austria and Belgium during the war time and has already established her predominance in the market. The quality of Japanese goods has improved remarkably and Japan has her own methods of underselling.

Owing to the more extended use of glass, the imports of glass into India are constantly increasing in spite of the local manufacture, which is quite inadequate and indifferent on account of the difficulties generally experienced in this country.

How Bengal has attained her present position in the glass industry and what amount of difficulties she had to struggle through may very well be gathered from the history of the Calcutta Glass Works narrated herein:—

The description of the conception and establishment of the Calcutta Glass and Silicate Works, Ltd., at Belgachia, a suburb of Calcutta, reads like a romance so to speak. That this factory erected on its present scientific principles, which has been producing glass goods of standing quality owes its origin to the brain of a young Bengali gentleman named Mr. B. K. Shaw scarcely 35 years now, who never visited Europe, America or Japan for training, is a tribute to his genius and the Bengali nation may surely feel proud of him.

Messrs. Shaw Brothers had been running a perfumery and patent medicine business for over a quarter of a century and their extensive business necessitated a constant supply of large quantity of bottles. During the year 1915 when war was going on with Germany, supply of glass bottles from European centres entirely failed, and Japan could not cope with India's demand even at three times the pre-war prices. Japan did not fail to take full advantage of the situation, although the quality of Japanese glass was very indifferent and its supply uncertain and insufficient. India had to submit however to this bleeding operation by Japan in order that she could pull on somehow or other. But as the supply was far from sufficient, many houses had to stop or restrict their business, while the rest were about to do so. Messrs. Shaw Brothers were not an exception to this universal distress. This state of thing set the brain of Mr. B. K. Shaw working.

The knowledge gained by studies of books, magazines, periodicals, etc., received from foreign countries led Mr. Shaw to plan for the production of glassware here. Furnaces after furnaces were erected, demolished and re-erected as defect or other was found in each of them, which could not be found all at once and remedied. In this way after an expenditure of over a lac of rupees and immeasurable labour, danger and anxiety Messrs. Shaw Brothers' noble enterprises in construction of furnaces were crowned with success. After construction of three up-to-date furnaces the factory was turned into a limited liability concern under the name and style of the Calcutta Glass and Silicate Works, Ltd.

Since the establishment of our works, many glass factories were started, among which 15 are now in existence in the province of Bengal.

For the time being we, as well as other factories, are manufacturing the following articles, *viz.*, bottles and phials of different shape and size, globes and lampware, jars, stationery glass goods, etc., by process of mouth blowing. We have capacity and knowledge of manufacturing other domestic glasswares but we cannot run more risk on account of foreign competition.

Although we have proper arrangement and capacity for producing 1,000,000 glass bottles of various kinds daily we are manufacturing 20,000 articles only after struggling against hard competition with Japan. There are many other articles of glassware which we could manufacture but we have not yet ventured to begin to manufacture them for fear of Japanese policy of underselling. And unless the tariff law is introduced here on them we cannot run our work in full swing and we will have to suffer a loss of our energy and capital.

At the present moment there is every capacity in this country to produce annually an enormous amount of glasswares excess of what could possibly be sold, both for the export trade and domestic purposes but as India has to face such a formidable antagonist party as Japan who stands a free competition even with United States, the best and most up-to-date glass producing country in the world, there is no room for the expansion of production unless the tariff commission is pleased to accord them the proper protection which is so very urgently needed especially at the present moment when India has to participate in a price-war in the midst of the greatest foreign competition she has ever had.

We now come to the question of comparative cost of production in Japan and in our country. As an illustration we compare below figures of relative cost of articles of the Calcutta Glass Works with those of Japan:—

	Our cost price	Selling price of
	per gross in Calcutta.	Japan per gross in Calcutta.
	Rs. A. P.	Rs. A. P.
1 oz. dispensing phial	3 0 0	3 0 0
2 oz. ditto	3 4 0	3 12 0
3 oz. ditto	3 8 0	4 6 0
4 oz. ditto	4 0 0	5 0 0
6 oz. ditto	6 0 0	6 0 0
8 oz. ditto	8 0 0	7 8 0
12 oz. ditto	10 0 0	9 8 0
1 oz. round phial	3 0 0	2 0 0
2 oz. ditto	3 4 0	3 0 0
3 oz. ditto	3 8 0	4 0 0
4 oz. ditto	4 0 0	5 0 0
6 oz. ditto	6 0 0	6 0 0
8 oz. ditto	8 0 0	8 0 0
12 oz. ditto	10 0 0	12 0 0
16 oz. ditto	14 0 0	13 0 0
1 oz. square phial	3 0 0	—
2 oz. ditto	3 8 0	3 0 0
3 oz. ditto	4 0 0	4 0 0
4 oz. ditto	4 4 0	4 8 0
12 oz. ditto	11 0 0	12 0 0
16 oz. ditto	14 0 0	13 0 0
24 oz. ditto	18 0 0	15 0 0
1 oz. three sides pannelled . .	3 0 0	3 0 0
1½ oz. ditto	5 0 0	4 8 0
2 oz. ditto	5 0 0	5 0 0
4 oz. ditto	7 8 0	7 0 0

	Our cost price	Selling price of
	per gross in Calcutta.	Japan per gross in Calcutta.
	Rs. A. P.	Rs. A. P.
6 oz. three sides pannelled	9 8 0	9 0 0
1 oz. wide mouth round	3 0 0	3 0 0
2 oz. ditto	3 8 0	4 0 0
3 oz. ditto	3 8 0	—
4 oz. ditto	5 0 0	5 8 0
8 oz. ditto	8 0 0	8 0 0
12 oz. ditto	11 0 0	10 0 0
16 oz. ditto	14 0 0	15 0 0
20 oz. ditto	18 0 0	18 0 0
24 oz. ditto	21 0 0	20 0 0
8 oz. oval phial (Grimault shape)	6 8 0	7 0 0
4 oz. Quinine phial	6 0 0	6 0 0
6 oz. Whisky shape (Powa)	7 0 0	6 8 0
12 oz. Whisky shape pint	11 0 0	12 0 0
12 oz. Tonic-shape (Jalpint)	11 0 0	12 0 0
22 oz. Beer-shape bottle	17 0 0	15 0 0
10 oz. Heavy pint	13 0 0	13 0 0
1½ oz. Golap nirjas (in Amber Glass)	3 8 0	3 8 0
1 oz. Round taper phial (Aguru shape)	3 8 0	3 0 0
2 oz. ditto	3 12 0	4 0 0
2 oz. Kaminia shape	5 8 0	6 0 0
4 oz. Kuntalin shape round	6 0 0	7 0 0
12 oz. Chatney bottle	13 0 0	12 0 0
24 oz. ditto	18 0 0	18 0 0
4 oz. Boot polish (Cobra shape)	5 0 0	4 8 0
1 oz. Ink pot (Swan's shape)	4 0 0	3 4 0
2 oz. ditto	5 0 0	4 0 0
4 oz. ditto	7 0 0	6 0 0
2 oz. Ink pot (Parker shape)	5 0 0	4 0 0
4 oz. round phial (Bengal Chemical)	5 0 0	5 0 0
4 oz. Castor oil (long shape)	6 0 0	7 0 0
2 oz. Boat shape	5 8 0	5 0 0
5 oz. ditto	8 0 0	9 0 0
4 oz. Aurora shape	6 0 0	4 4 0
6 oz. six sided tamato bottle	7 8 0	8 0 0
10 oz. ditto	12 8 0	12 0 0
2 oz. Hazeline snow phial with aluminium top	5 8 0	4 8 0
½ oz. wide mouth phial with metal screw top	—	—
1 oz. ditto	—	—
2 oz. ditto	—	—
4 oz. ditto	—	—
8 oz. ditto	—	—
16 oz. ditto	—	—

	Our cost price	Selling price of
	per gross in Calcutta.	Japan per gross in Calcutta.
	Rs. A. P.	Rs. A. P.
¼ oz. Tablet phial with alumi- nium screw cap	—	—
¾ oz. ditto	—	—
1 oz. ditto	—	—
1½ oz. ditto	—	—
2 oz. ditto	—	—
2½ oz. ditto	—	—
¾ oz. round tall (Kalmi phial)	—	—
½ oz. ditto	—	—
⅓ oz. ditto	—	—
¼ oz. ditto	—	—
⅓ oz. ditto	—	—
1 oz. ditto	—	—
2 oz. ditto	—	—
1 oz. Octagonal decorated Hunter phial	—	—
2 oz. ditto	—	—
4 oz. ditto	—	—
6 oz. ditto	—	—
2 oz. Eau-de cologne phial	—	—
¼ oz. Milky white with screw top	—	—
1 oz. ditto	—	—
2 oz. ditto	—	—
Dietz lantern chimney	—	—
Hink's hurricane chimney	—	—
Pine moon chimney	—	—
Globe for Duplex lamp	—	—
Globe for Washington lamp	—	—
Globe for Oyster lamp	—	—
Globe for carriage roof lamp	—	—

From the above figures of illustration it will appear that after meeting packing charges which are minutely done in great detail, each article being wrapped and cased in straw and paying steamer freight, etc., f.o.b. quotations of Japan to any part of India are much lesser than what we are able to quote.

As far as we are aware the cost of raw materials in making glass is almost the same in Japan as in India; the only point is that Japan can manipulate her labour at a much more lower cost to produce the glass bottles by using Automatic and semi-Automatic machine which we at present cannot do in India. Thus the proved efficiency of Automatic machine and consequent reduction in labour cost has enabled the foreigners to sell their article at a rate far below even the cost of our production.

The following extracts from the "Glass Industry" as affected by the War Tariff Information Series No. 5, published by the Washington Government Printing Office, 1918, will clearly show the effect of hand and machine competition on domestic and export trade.

In the production of bottles, a high degree of mechanical efficiency has been attained in American factories. Without the touch or aid of a human

hand an automatic machine produces complete 1 drum bottles at the rate of 165 per minute, and of large size in proportionate time. In the manufacture of beer bottles one machine displaces 54 skilled hand workmen. The labour costs is "practically nothing". The Automatic Bottle Machine Company, through its Statistician and Sales Manager, stated to the tariff commission: "We can produce a bottle cheaper than any one else in the world and we feel sure we can give the quality". The Company has issued licenses permitting the use of the machine at home and abroad. Before the war it was in use in nine foreign countries. That the users of the automatic machines in the United States produce bottles cheaper than elsewhere is due to superior efficiency in general equipment, management, skill of employees and to the relatively lower cost of fuel, whether natural gas or coal, which no hand operating furnace could possibly hope to achieve.

The statement given below of Mr. T. W. Rowe, of the Ownes Bottles Machine Company, clearly shows how Japan having at last come to use their machine has handicapped the American Glass Industry.

About eight months ago a Japanese concern started a factory and placed two machines in operation. Surprising as it may be, the highest production ever attained in the United States in the making of beer bottles has been about 425 gross a day. In Japan they are making 500 gross of beer bottles a day on each of these two machines. I think that is largely due to the ingredients used in their glass. There is something in their sand, a little more clay. I judge, than we have here, which enables the glass to set quicker, enables the bottles to chill quicker, and it drops out of the machines a little faster. But we may possibly hope to overcome all the difficulties if we simply abide by the factors that should be depended upon for holding domestic trade.

The replies of the manufacturers of the different branches of the industry to the inquiry of the questionnaire, as to what factors are depended upon for the holding of your trade in the United States against foreign competition after the war, varied. The majority of the window glass manufacturers, both machine and hand, place their dependence upon a protective tariff.

Although the tariff is the chief factor depended upon by a machine-made window glass company, it also expects preference in the home market on account of quality, proximity to the consumer, and ability to supply his wants promptly.

Plate-glass manufacturers are depending upon a protective tariff. They regard the Tariff Act of 1913 as inadequate and fear a flooding of the country with foreign plate-glass by continental syndicates.

A lighting-ware manufacturer wants a tariff law to protect the industry against Europe and Japan, but believes that if combinations were permitted then manufacturers would develop improved methods of production which would make a protective tariff unnecessary.

That a tariff should be placed on foreign glass, the rate of duty to be determined by comparative costs of production, is the view of another lighting-ware concern. A manufacturer of glass lamps asserts that if wages are doubled in Europe after the war there will be no need of a tariff against foreign glass. A tableware manufacturer does not believe in a tariff will, but thinks 60 per cent. most too high, whereas another thinks that under the present tariff he could not compete.

Blown and pressed ware manufacturers express the belief in the majority of cases that they cannot hold their domestic trade without a protective tariff. One manufacturer, after 40 years of experience, states he has been vitally affected by tariff conditions. One blownware manufacturer of lamp chimneys of a large scale states that although he is depending upon some protection from the Government. 30 years' study of the needs of the people, the quality of his manufactured goods, the prompt service his firm is able to render against foreign competition, fair treatment to customers, and the reputation of its trade-marks are the basis of his expectations of or holding his domestic trade.

Bottle and jar manufacturers are very much divided in their opinions. Like window glass, this ware is made by automatic and semi-automatic machines and by the skill of the hand blower.

The automatic bottle machine makes 45 per cent. of the total production of bottles in the United States, the remainder are made on the semi-automatic and by a hand labour cost of producing bottles in the automatic machine is practically nothing, as the representative of the company stated to the Tariff Commission. The makers of the bottles by automatic machine have no fear of foreign competition and care nothing for tariff. Makers of bottles and containers by hand as has been the case with us also in India, to fear competition and state that they will need tariff protection.

The labour representative of the Glass Bottle Blowers Union says that it is absolutely necessary that we have a fair and equitable tariff, but not a high tariff. A manufacturer claims that the tariff of 1913 will allow foreign made bottles to come in.

Thus tariff protection is claimed by most of the glass manufacturers even in United States of America and this to some extent might be avoided in the country if we are only permitted to request the Tariff Board to insist Government to force the glass manufacturers to form Associations with a view to stop internal competition as in other countries.

Taking up this proposition, we believe if associations were permitted among the glass manufacturers, safeguarded by such restrictions as would protect the consuming public from excessive price, it would enable us to overcome many of the difficulties that now confront us, and would place us in a position where we could eliminate many sources of expense that are peculiar to our present method of manufacturing and selling. If associations were permitted it would enable a body of manufacturers to conduct experiments and inaugurate a system of development, the expense of which would be borne by the association, and which, if attempted by an individual would be too great to undertake. The German manufacturers particularly are permitted by the Government to form what are known as cartels which enable them to compete very successfully in the foreign markets, and if some of the prices that have been quoted in our markets on glassware are criterions of the benefit that could be derived from these associations, it supports very strongly our opinion that similar associations in this country would work for the mutual benefit of the glass manufacturers and men employed in that industry. These associations when formed will no doubt be in a position to help the Government to assess the tariff duties which should be mainly based upon relative cost of production.

An import duty should be placed on foreign glassware sufficient to protect the indigenous producer, but its amount should be determined by comparing the cost of production in this and in foreign countries. If this cannot be done we would determine to some degree, at least, what the difference between the cost of the production in this country and the cost of production in foreign countries, by comparing the cost of production in this country with the selling price at which the foreign goods are offered in our market. Our cost could be determined by taking the figures that a uniform cost-system would give us, and enable the framers of a tariff law to get approximately accurate average costs in this country. Local conditions may have some slight effect upon the cost in various parts of the country, but this difference would be so slight, that the result could be accepted with confidence as representing the actual conditions.

Government should therefore require cost-systems to enable them to determine the amount of tariff protection required for this country. But as we have had no such system due to entire absence of glass association here we cannot furnish Government with any definite figure that would probably be of some help to the Tariff Board in framing the Tariff Law. If then the associations are formed by all manufacturers and it is found that our costs were such that we could not successfully compete in our home markets with the foreign product, we could then with confidence go before the Government and ask for Legislation that would protect us and

support our request by facts and figures from our books that could not be disputed. We have had this question up with a number of manufacturers individually and we are glad to say that recently we have succeeded in inducing some manufacturers to discuss this question, with the idea of introducing same in this country. Glass manufacturers should be compelled by the Government to place a cost system in their factories, in order that they may be able to furnish Government with actual figures when they request a revision of the tariff, and in this way the Government and the manufacturers would be co-operating along lines that would bring the best results to all the parties concerned.

We will now take up the question of Japanese competition and find out how far it has affected both the American and the Indian Industries.

The statement of Mr. J. E. Capen, Sales Manager of the Macbeth-Evans Glass Company, Pittsburgh, Pa, submitted below, clearly signifies the extent of competition which Japan has in course of time been enabled to reach. He says:—

Japanese Competition.

“Here is our tumbler catalogue. I think you will find by looking at this catalogue that this Japanese concern has copied our patterns exactly; they have copied our cuttings, our etchings and bandings.

Some little time ago we commenced to hear of Japanese competition, to some extent. We did all we could to find out what was going on and what it amounted to. The first thing I heard in connection with Japanese competition that would come right back home to our concern was in New York City. I called to see the largest manufacturers of lanterns in the United States, and probably in the world. This New York concern does a tremendous export business. He buys the lantern globes. He buys some of them from us and a great many more from others. He showed me a Japanese lantern globe that he had received from India. The globe was not very good but the price at that time was one-fourth the price at which the globe could be purchased in this country, and we are making it at a very low price at the time. He made the statement to me that if they continued to furnish the globe at that price and he seemed to think that globe would be good enough for the trade in India that he would not be able to sell any more lanterns in India. I thought that was of sufficient importance to justify looking into the Japanese business more carefully. One or two of our competitors had heard about the incident. They knew we had the globe, and we sent it to several of them to look at it.

We also heard of some chimneys, but the quality of the chimneys was very poor.

We have a representative in San Francisco a man we think a great deal of and rely on him to a very great extent, as we do in the eastern end of the country on Mr. Lukens. We told him to find out all he could for us about the Japanese competition. When he was here, perhaps a year or so ago, he said that there had been some chemical glass bought and shipped in on the coast. I told him by all means to get samples of it. He got some and here are two samples. This is supposed to be chemical ware.

Those were made in Japan. The labels were on them. When it comes to the moral question it would not be considered fair competition by American manufacturers. They are the same shapes; the cuttings and patterns are exactly alike. The last decisions by the Federal tribunals have ruled that unfair competition bore directly on this point.

The chemical glasses are pretty good. We had some of them tested. They are not as good as make here, but they are better than we had any reason to believe they were making over there. The distribution of glass is very good. It is just about the proper distribution and that is really a difficult thing to arrive at. It shows they are getting there.

We succeeded in selling some laboratory glassware in Australia, through our representatives, Scott and Holladay. They do a good deal of business for us. I would like to read a short abstract from a letter that I have here.

Our friends are very satisfied indeed with the glassware. What we have to fear most in the handling of this line is the breakage, and we are more than delighted to tell you that the packing is good and the breakage is consequently very small, in fact, practically nothing to date. We expected to secure a very substantial order, but they advise that none of the items covered by this shipment landed under 50 per cent. higher rate than the Japanese materials and many of them were about 150 per cent. higher. Furthermore the Japanese are rapidly improving in the matter of quality and the demand for goods of this kind will naturally be restricted by reason of the fact that it is extremely difficult to get the cheaper Japanese material, even if the quality is not of the best."

That shows that the quality has unquestionably been improved by the Japanese to quite a degree resulting in such an expansion of export trade that a large number of manufacturers are quoted as fearing Japanese competition more than ever. The grounds for this and the extraordinary development of Japan's export trade in glass are shown in and from each year, since 1913 and up to December 31, 1927.

Prior to 1917 exports of window glass were not shown in Japanese official statistics. In that year nearly 22,000,000 square feet, valued at over \$1,500,000 were exported. Exports of bottles and flasks increased from 5,500,000 dozen in 1913 to nearly 15,000,000 dozen in 1917. These are the notable increases. In values the increase was from \$659,427 in 1913 to \$7,230,126 in 1917. The table of Japan's exports by countries for the same calendar years, 1913 to 1917, shows a remarkable increase in the glass exports of Japan to India in 1917. In 1913 Japan's exports to India amounted to only \$497,999, while in 1917 they were \$2,178,509, to other countries the increases in 1917 were also notable.

Glass exports of Japan, 1913—1917.

Articles.	1913.	1914.	1915.	1916.	1917.
Quantity.					
Window glass (S. ft.) . . . . .	..	..	..	..	21,923,037
Thermos (doz.) . . . . .	..	..	..	..	52,272
Bottles and flasks (doz.)	5,576,623	5,581,625	8,118,630	15,693,646	14,980,870
Cups (doz.)	1,114,665	955,830	2,329,991	3,876,455	3,032,949
Looking glasses (no.)	10,068,009	6,436,660	8,183,209	12,360,017	13,396,473
Spectacles (no.)	3,275,053	1,811,317	2,203,805	2,756,804	3,275,829
Value.					
	\$	\$	\$	\$	\$
Window glass . . . . .	..	..	..	..	1,558,379
Thermos . . . . .	..	..	..	..	242,984
Bottles and flasks	575,028	573,783	881,126	1,854,367	2,199,784
Cups	153,165	130,852	430,197	989,309	848,398
Tableware . . . . .	..	68,786	108,209	194,466	193,656
Beads and balls	245,049	230,287	227,170	481,612	817,572
Looking glasses	353,306	287,263	293,525	533,618	740,096
Spectacles	60,810	37,101	44,326	74,949	90,126
Other	272,079	135,080	951,913	1,070,388	533,671
TOTAL	1,659,427	1,463,152	2,936,466	5,198,704	7,230,128

Glass exports of Japan, by countries, 1913—1917.

Country to which exported.	1913.	1914.	1915.	1916.	1917.
	\$	\$	\$	\$	\$
United States	2,767	4,272	12,421	76,509	401,830
China	445,745	412,818	664,614	956,370	1,492,546
Kwantung	109,090	67,537	149,310	176,127	391,328
Hongkong	142,028	131,425	137,318	221,014	437,312
British India	497,999	414,202	973,516	1,495,347	2,178,509
Straits Settlements	178,733	119,937	194,194	312,189	277,565
Dutch India	119,991	109,939	146,300	267,481	401,679
Philippine Islands	60,389	79,787	128,533	204,964	383,025
Great Britain	4,889	4,548	37,257	306,832	154,731
Cape Colony and Natal	132	405	18,205	146,377	118,561
Australia	51,883	80,505	401,340	760,230	581,514
Other Countries	45,781	37,775	78,458	275,264	401,528
TOTAL	1,659,427	1,463,152	2,936,466	5,198,704	7,230,128

The figures for 1913 to 1916, inclusive, are from Annual Return of the Foreign Table of the Empire of Japan, Volume I, for 1917 from Monthly Summary of the Foreign Trade.

The above figures indicate the extent to which Japan has made advancement in glass industry with regard to her export trade and to cope which tariff protection is undoubtedly needed for this country but the stages of development at which protection may be required for an industry in this country would be considered carefully before we can hope to claim any. We consider that an industry might receive protection at any stage provided it is such that without the help of protection either is not likely to develop at all or so rapidly as is desirable. The glass industry being still in an infant and undeveloped stage is quite unable to meet the competition of more highly developed foreign industries. The cause of our inability to compete Japanese and other foreign manufacturers is due to extensive use of machinery on their part and lac of Government co-operation in the case of ours.

But most difficult task for the Tariff Board will be to determine the rate of protection required by an industry. We have not found it possible to lay down for the guidance of your Board any definite principle in regard to this particular point. To hold the present trade in India against foreign competition we should of course need a protective tariff which will equalise prevailing condition of our country as compared with those in other countries. This proposed tariff, we beg to submit, will largely be an equalization of the labour cost of mouth-blowing in the manufacture of glass in our country as compared to the labour-cost of the automatic machine blowing in other countries. The fixing of the rate is thus a matter of judgment to be based on fullest knowledge of facts and hence it has been our best and most honest endeavour to represent our case before the Tariff Board in details as far as we have been able to do.

We hope that this report will clearly establish our case and amply justify our claim for tariff protection. We are quite prepared to submit for your guidance any further information that your Board may be pleased to require of us for the grant of the concession asked for. We are quite convinced that this particular industry will receive a favourable treatment at the hands of the Tariff Board as it fulfils all the conditions require

for the tariff protection namely availability of raw materials, cheap labour cost, the extensive demand of glass articles, immense scope and possibilities of development, etc. We cannot of course claim the tariff protection as a permanent measure as that would be detrimental both to the interests of the Government and our country as well. But the stage at which we are at present in fully justifies our claim and unless and until proper tariff protection could be secured the bottle industry in India has no prospect before it. This is our earnest and most prayer-full request. May it find a response in your sympathetic heart.

B.—Replies to the Questionnaire submitted by the Calcutta Glass and Silicate Works, Ltd.

1. The Calcutta Glass and Silicate Works, Ltd., is a public limited liability Company.
2. The whole of the paid up capital of this Company is held by Indians except 200 shares held by a European Mr. S. S. Hodson. All five Directors are Indians. Two of them form part of the management.
3. Our works commenced during the year 1915 and on the 14th September, 1920, the said Company turned into a limited liability concern.
4. The full capacity of manufacturing glass in our works is 12 tons per day.
5. (a) We mainly manufacture different sizes of bottles and phials and occasionally globes.
- (b) The following quantity of phials (including bottles) we have manufactured annually for the last five years:—

In the year—

	Pieces	or	Gross.
1926	75,04,560		52,115
1927	80,62,560		55,990
1928	67,48,128		46,862
1929	69,23,520		48,080
1930	67,49,424		46,871

6. Our Factory is situated at Belgachia a suburb of Calcutta.
 - (a) & (b) Our Factory is not so advantageously situated in respect of vicinity to the areas from which our principal raw materials are drawn and coal fields.
 - (c) But it is very suitably situated in respect of suitable and important business market.
 - (d) It is also a place where constant and abundant labours are available.
7. Site for the Glass Works ought to be selected in a place which is nearer to the Railway Station or Steamer Ghat, important trading place and the vicinity from which principal raw materials are drawn.
8. In our opinion although our products are not equal in quality to imported glassware; but they are almost equal in appearance and they do not command the equal price of the foreign goods. The lower prices are due to the tendency of the public to purchase country made goods at a comparatively lower rate than those of the foreign goods.
9. The production of glass at our works is constant throughout the year; but in summer season the production is comparatively smaller.

Raw Materials.

10. The following raw materials and fire-resisting materials are used in our factory, viz.:—Sand, soda, lime, saltpetre, sulphur, cobalt oxide, bichromate of potas, arsenic and other chemicals. Fire-clay, fire-bricks, silica-cement, silica-bricks, fire-blocks, etc.

Coal and other Fuels.

11. The annual requirements of raw materials according the rate of output equivalent to the full capacity of the plant are:—

	Tons.
(1) Sand	3,000
(2) Soda	1,000
(3) Lime	375
(4) Saltpetre	75
(5) Colouring materials	5
(6) For fuel coal	6,000

12. The quantity of each of the raw materials required for the production of 1 ton ordinary half white glass is as follows:—

(1) Sand	15 cwt.
(2) Soda	5 cwt.
(3) Lime	2 cwt.
(4) Saltpetre	42 lbs.
(5) For fuel coal	1½ tons.

13. We get our sand from Allahabad and Banda District, a distance of about 600 miles from Calcutta and Lime from Kutni a distance of about 650 miles from our place. Soda and other chemicals are purchased locally from the dealers.

14. Among the raw materials sand, lime and coal are collected by the dealers of those particular places from whom we purchase and those materials are transported from those places to Ultadanga Railway Station which is nearer to our factory from which place they are carried to our works by carts and lorries. Railway freight for sand, lime are As. 4-10, As. 5-11 per maund respectively and coal Rs. 3-5-6 per ton.

15. As we do not collect raw materials direct from the source and we purchase through the dealers, we do not pay any royalty to Government or to any private individuals.

16. The cost delivered at the works of each raw materials divided under the following heads are:—

(a) Royalty, (b) Labour, (c) Freight, (d) Other charges.

Sand	}	As we purchase from the dealers at f.o.r. Ultadanga Station rate we are unable to give accurate figures in the above different heads.
Soda		
Lime		
Chemicals		
Coal		

17. We do not hold any concession as regards the raw materials.

18. We do not import any raw materials direct from the foreign countries. The soda we purchase from Imperial Chemical Industry (India), Ltd. and chemicals from the local market.

19. Among the imported raw materials soda can be manufactured in India at an economical cost. We are informed that a factory for manufacturing soda has already been started in Bombay Presidency.

20. We consider the materials used by our factory at present suitable for the manufacture of the kinds of glassware in which we are interested.

21. Among the raw materials for the manufacture of glass, the soda is imported into India and this, we suppose, competes with our products.

22. As our factory is equipped with tank furnaces we do not require any crucibles or pots in which glasses are melted.

23. Furnace refractory materials used at our Works are satisfactory and they are obtained from Messrs. Burn and Company of Ranigunj, Messrs.

Bird and Company of Kumardhubi and Fire-bricks and Tiles Works of Mogma. We have no knowledge of their composition. Ordinary fire-bricks lasts for 6 months and silica-bricks for a year or little more.

Labour.

24. Processes employed in the manufacture of glass require expert supervision; but no skilled imported labour is necessary at our works.

25. We have no imported labourers employed at our works.

26. The facilities which exists for the workmen to acquire training at our works are that the ordinary labourers are taken as apprentice and they are trained gradually from ordinary carriers to the best blowers when their wages are substantially increased, and it has been found that the Indian labourers improve quickly with training.

27. Only the blowing process of the skilled labours may be replaced by automatic or semi-automatic machines.

28. Want of sufficient capitals is the chief consideration which prevent a more extensive employment of machinery in our works in place of manual labour.

29. Processes by which glass is manufactured at our works do not affect the efficiency of the Indian workmen on account of the high temperature.

30. (a) The total wages paid at our works during the year 1930 is Rs. 71,313.

(b) The average rate of wages in different classes of labour is Rs. 20 per head per month.

(c) The total number of workmen employed at our works are on an average about 300.

31. Habitable quarters for the superior labourers and latrine and drinking water arrangements have been made in the compound of the leased factory land for the labours.

Power and Fuel.

32. The principal fuel used in our works is steam coal which is available in sufficient quantities.

33. The fuel is brought from Ranigunj which is 200 miles distant from Calcutta and the freight paid on it is Rs. 3-5-6 per ton and the total cost delivered at our works comes to Rs. 8 per ton.

34. The fuel used in the glass melting furnaces applied in the form of gas in order to get sufficient and clean heat and for the neckmaking furnace and annealing furnace fuels are applied directly.

35. Steam and electric powers are used in our works. Steam is required for the production of coal gas and electricity is used for the motor and lighting.

36. The total quantity of fuels required per ton of melted glass is 1 ton 2 cwt. and for finished glasswares 1 ton 10 cwt.

Equipment.

37. Our works are sufficiently large as a unit of production to ensure economy.

38. A brief description of our plant and the process of manufacture employed in our works are as follows:—Batches of raw materials are melted in re-generating tank furnace heated by coal gas produced in gas producer. Workers gather melted glass from the working side of the furnace with a blowing pipe and blow them in a mould by mouth to different shapes and the second operation of neck making is done by the other men and then the finished goods are taken to the annealing chamber and after they are well annealed they are stored.

39. As our works are not fully equipped with modern and up-to-date machineries and plants on account of want of sufficient capital, the process of manufacture adopted by us is not sufficiently up-to-date and efficient to enable us to compete successfully against foreign manufacturers. If automatic machines for blowing and other manual labour saving machines are introduced at our factory the cost may be reduced and quality may be improved to much more extent.

40. We have adopted in recent years no new process of manufacture.

41. The conditions of manufactures in India differ materially from those in competing countries in respect of the point that the foreign manufacturers can manipulate their labour at a much lower cost to produce the glass bottles by using machineries of modern type.

42. The main machineries are not made in India. They are imported chiefly from America, Japan and Germany. Minor parts of machineries moulds and other implements are made in India.

43. The present total Indian production of the principal kinds of glasswares including bangles are not known to us.

44. The principal markets of our products are Bengal, Madras, Punjab, Rangoon and Central Provinces.

45. (a) The present rate of railway freight applicable to glassware is about $\frac{1}{4}$ a pie per maund per mile at railway risk, and we have no advantage in this respect over imported glasswares.

(b) Railway freight charged on glassware on gross weight, and the ratio of the nett weight to gross weight is 3 to 4.

46. Railway freight is charged by mileage. Therefore freight for any up-country market from any nearer port other than Calcutta is much less than from Calcutta to that place.

47. The exports of glass from India to sister countries and Asiatic Islands are probable, provided concession of carriages are available.

48. At present we find the competition from Japan in India market is keenest in respect of all classes of glasswares.

49. (ii) (a) & (b) The average price realised by us for last five years is as follows:—

In the year—	Per gross. Rs.
1926	7
1927	6
1928	5
1929	5
1930	5

51. No parts of our products have been purchased either by Government or by other public bodies direct from us.

52. In comparison with foreign manufacturers we are in a difficult position in respect of machineries which are not being used extensively. Indians are to import them from foreign countries together with expert mechanic for handling those machineries for some times until the Indians are trained up to do so.

53. According to demand of the market the foreign producers sometimes raise their price and lower their price extensively and this system of selling shows that they undersell some of their goods in India which are un-economical price and at the same time deterring the Indian industries.

Capital.

54. The block value of our property as stood in our books at the 31st December, 1930, under the following heads:—

	Rs.	A. P.
(a) Leases and concessions		Nil.
(b) Lands, leased		Nil.
(c) Buildings	33,373	14 3
(d) Plant and machinery	1,39,730	12 0
(e) Miscellaneous assets	1,67,484	15 7

55. The total amount of depreciation written off since the year 1920 is Rs. 2,14,498-10-0.

56. During the war time and subsequent years the prices of all materials relating to buildings and plant and machineries were unusually high and we were to purchase then at the prevailing rate of that time; therefore estimation of present day cost under the heads of buildings and plant and machineries of erecting a factory having the same capacity as our present works is 50 per cent. lower.

57. (a) The amount of paid-up share capital in the year—

	Rs.
1926	2,03,850
1927	2,03,850
1928	2,03,850
1929	2,03,850
1930	2,03,850

(b) No dividend has been distributed during the last 5 years.

58. Our Company has issued no debenture.

59. Company has no reserve fund.

60. At present we have no contemplation for the replacement or extension of plants, etc.

61. The forms are fully filled up and annexed.

62. The percentage of wastage including breakage in our factory at each state of manufacture comes to about 15 to 20 per cent. of the total production.

63. As we are interested only in manufacturing bottles we are not in a position to explain fully the variation of the expenditure of different glasswares.

64. Rates of depreciations allowed by income-tax authorities on glass factory are not known to us.

65. (a) Stock of raw materials and fuels held by us on the 31st December 1930 is Rs. 6,837-2-0 and stock of finished goods amounts to Rs. 64,165.

(b) Outstanding in respect of goods sold on the 31st December 1930 is Rs. 96,482-13-7.

66. The Company is managed by two of its Directors as Managing Agents under the name of Shaw Brothers and Company.

(a) Managing Agents are allowed Rs. 750 per month for office establishment.

(b) They are at present not allowed any commissions.

67. In support to the conditions laid down in the Fiscal Commission Report for protection of Industries we beg to point out that India has very good extensive home market for glasswares of all kinds. Every year several crores worth of glasswares are dumped in the Indian ports by different

foreign countries. An elaborate and detailed table from Indian Trade Review is given below:—

Indian Trade Review shows the following:—

I.—Import figures of Glasswares in Indian Ports in rupees for last 5 years.

Province.	1925-26.	1926-27.	1927-28.	1928-29.	1929-30.
Bengal . .	83,85,939	86,68,080	80,83,678	74,49,822	77,04,864
Bombay . .	1,23,82,506	1,01,96,112	1,03,05,336	1,03,84,820	1,16,19,877
Sind . .	14,88,439	17,16,909	15,22,274	15,74,178	14,17,163
Madras . .	23,68,735	32,06,707	33,33,698	30,63,660	31,15,275
Burma . .	13,20,025	15,00,431	15,95,864	12,77,000	13,35,989
TOTAL .	2,59,45,644	2,52,88,239	2,48,40,850	2,37,49,480	2,51,93,168

March account, 1931 (Indian Trade Review), gives the following figures of import in India:—

	Rs.
Bangles	49,90,000
Bottles	29,95,000
Beads and pearls	15,72,000
Sheets and plates	23,88,000
Funnels and globes	12,26,000
Other glasswares	33,07,000
TOTAL .	1,64,78,000

As regards raw materials, of the three main ingredients, resources of sand, lime and coal are abundant and there is no chance of those materials falling short in near or distant future. As regards soda, though we are at present depending on foreign countries there is possible chance of Soda being manufactured at a lower rate in India, and we know attempts have been made to start a Soda Factory in Bengal. As the Glass Industry in India is still in its infancy and in the absence of any organisation among the manufacturers themselves is feeling a keen competition from foreign manufacturers; we may reasonably claim protection for its growth and development for the time being. We are convinced under careful protection this infant industry will attain maturity to face world competition.

68. (a) It is a very difficult task for us to determine the amount of protection required by Glass Industries in India. We have not found it possible to lay down for guidance of Tariff Board any definite principle in regard to this particular point. To hold the present trade in India against foreign competition we should of course need protection, which will equalise the prevailing condition of our country as compared with those of other countries. The fixing of the rate is thus a matter of judgement to be based on fullest knowledge of facts; and hence it has been our best and honest endeavour to represent our case before the Tariff Board in details as far as we have been able to do.

(b) This ought to be inform of protective custom duty which in our opinion should be cent per cent. on common glass bottles and globes in which we are at present interested.

(c) We require protection for our factory in respect of glass bottles and globes which we at present manufacture.

69. As the production of glass bottles and globes are sufficiently large to meet the demand of consumers we do not find any industry which may likely to be affected by a protective duty on glass bottles and globes.

FORM I.—Statement showing the total expenditure incurred at Works on the production of glass during the past five years.

	1926.		1927.		1928.		1929.		1930.	
	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.
I.—Raw materials—										
(a) Sand	14,625	0 0	11,993	0 0	10,992	0 0	12,151	0 0	8,850	0 0
(b) Soda ash	36,585	0 0	31,590	0 0	28,775	0 0	32,480	0 0	23,380	0 0
(c) Lime	4,875	0 0	3,310	0 0	4,330	0 0	3,000	0 0	3,616	0 0
(d), (e) & (f) Cullets and other materials.	27,593	3 9	27,956	13 9	17,682	11 6	16,762	11 3	17,597	4 0
II.—Works labour	98,479	0 6	104,708	4 9	79,381	1 9	76,814	9 0	71,401	14 0
III.—Power and fuel	54,444	2 9	46,802	8 9	40,123	3 9	38,135	6 3	36,650	2 6
IV.—Supervision and office establishment and manufacturing charge.	33,027	8 6	31,681	10 3	26,205	10 6	27,001	6 6	22,417	3 0
V.—Repairs	3,359	9 6	2,327	14 0	3,233	8 0	3,593	0 6	2,813	11 3
VI.—Packing	9,366	2 0	7,673	9 6	6,168	15 6	6,659	14 9	4,291	8 9
VII.—Selling expenses	26,009	13 6	20,138	12 6	13,295	5 6	15,853	13 9	7,427	9 9
VIII.—Miscellaneous stationery, rent, tax, interest and other charges.	30,394	7 2	30,959	6 7	24,007	15 5	34,231	4 3	28,034	12 7
TOTAL	3,38,758	15 8	3,19,142	0 1	2,54,195	7 11	2,66,633	2 3	2,24,480	1 10
Total production in tons of glass for the year—	Tons.		Tons.		Tons.		Tons.		Tons.	
Melted, finished	1,725		1,650		1,300		1,325		1,150	

FORM II.—Statement showing the works expenditure per ton of each class of glassware during the past five years.

	1926.	1927.	1928.	1929.	1930.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
I.—Raw materials—					
(a) Sand	8 0 0	7 0 0	8 0 0	9 0 0	7 0 0
(b) Soda	21 0 0	19 0 0	22 0 0	24 0 0	20 0 0
(c) Lime	2 0 0	2 0 0	3 0 0	2 0 0	3 0 0
(d), (e) & (f) Culletts and other chemicals.	16 0 0	16 0 0	13 0 0	12 0 0	15 0 0
II.—Works labour	57 0 0	63 0 0	61 0 0	58 0 0	62 0 0
III.—Power and fuel	31 0 0	28 0 0	30 0 0	28 0 0	31 0 0
IV.—Supervision and office establishment and manufacturing charges.	19 0 0	19 0 0	20 0 0	20 0 0	19 0 0
V.—Repairs	2 0 0	1 0 0	2 0 0	2 0 0	2 0 0
VI.—Packing	5 0 0	4 0 0	4 0 0	4 0 0	3 0 0
VII.—Selling expenses	15 0 0	12 0 0	10 0 0	11 0 0	6 0 0
VIII.—Miscellaneous, stationery, rent, taxes, interest and other charges.	17 0 0	18 0 0	18 0 0	25 0 0	22 0 0
TOTAL	193 0 0	189 0 0	191 0 0	195 0 0	190 0 0

(2) *Letter dated the 19th December, 1931, from Calcutta Glass and Silicate Works, Ltd.*

We beg to submit herewith replies to supplementary questions and definite protective suggestions in reply to question No. 68 (a) and (b) of the questionnaire in response to our representation for protection of Glass Industry. We beg to submit that the Board should consider the following protective measures which we had put forward in our oral examination before the Board on 17th instant. Besides cent per cent. duty on bottles, phials and globes as claimed by us concessions in railway freight on raw materials and finished goods be granted. Further we want that Government and Railways whether (State or Company-managed) should be induced to place orders with our firms. Regarding actual consumption of coal per ton of melted glass in 1930 we may state that on an average 3 tons 10 cwt. of coal were consumed per ton of finished glass. It will not be out of place to mention here that the cost per ton of coal in the said year was including everything Rs. 9 per ton and the factory labours are allowed free use of coal for their domestic purpose. Further in the supply of coal there is an approximate shortage of 1 ton per wagon, i.e., 5 per cent. less than actual weight. These factors together with others contribute to greater consumption of coal. As regards average realised price per gross for 1931, we ascertain from our audited report for half year, i.e., January 1931 to June 1931 it will come to Rs. 3-12 per gross. Herewith we are sending you audited reports for last 5 years from 1926—1930 and two copies of analysis reports of Bengal sand and Bargarh sand.

Enclosure.

Copy of Report of the analysis of Bengal Sand.

Sample as received—	Per cent.
Moisture	2·0
Sil ₂	83·5
Al ₂ O ₃ + Fe ₂ O ₃	6·2
CaO	2·2
Mg ₂	1·6
Mn ₂ O ₄	4·5
	<hr/> 100·0 <hr/>

Copy of Report of Bargarh Sand by R. V. Briggs and Company, Bargarh.

	Per cent.
Silica	95·92
Alumina	1·70
Oxide of Iron	0·90
Lime	0·53
Magnesia	0·24
Alkalies moisture, etc.	0·71
	<hr/> 100·00 <hr/>

THE CALCUTTA GLASS AND SILICATE WORKS, LTD.

B.—ORAL.

Evidence of Mr. S. SHAW, Mr. A. ROY and Mr. B. K. SHAW, recorded at Calcutta, on Thursday, the 17th December, 1931.

President.—Mr. Roy, you represent the Calcutta Glass and Silicate Works, Ltd.?

Mr. S. Shaw.—The Calcutta Glass and Silicate Works, Ltd., are managed by Messrs. Shaw Brothers and Mr. Roy is the Manager.

President.—I understand from one of the statements you have sent to us that Messrs. Shaw Brothers are engaged in the preparation of perfumery and patent medicines.

Mr. S. Shaw.—Yes.

President.—And that was the first business in which Messrs. Shaw Brothers were engaged, and they undertook the manufacture of glass at a subsequent stage?

Mr. S. Shaw.—Yes.

President.—At present what proportion of your output of glass is purchased by Messrs. Shaw Brothers for their requirements?

Mr. S. Shaw.—Formerly we used to sell about Rs. 5,000 worth of perfumery but now our business has come down to about Rs. 500 per month and therefore the purchase of bottles also has reduced proportionately.

President.—That is about a sixth?

Mr. S. Shaw.—That is correct.

President.—It used to be a larger proportion before?

Mr. S. Shaw.—Yes.

President.—Therefore, for the bulk of your output you have got to find an outlet in the open market; that is the position?

Mr. S. Shaw.—Yes.

President.—The full capacity of your works is 12 tons per day?

Mr. Roy.—Yes.

President.—May we take that as an accurate figure?

Mr. Roy.—That is the approximate figure if we work three furnaces.

President.—At present what is your output?

Mr. Roy.—We have been working only one furnace and that furnace produces three to four tons per day.

President.—When you speak of tons per day, are you thinking of melted glass or finished glass?

Mr. Roy.—Finished glass.

President.—Lantern globes make a very small proportion of your output at present?

Mr. Roy.—Yes, a very small proportion. Two years ago we manufactured lantern globes for three months, but since then we have not been manufacturing lantern globes.

Mr. S. Shaw.—We have a mind to manufacture these. We have started another furnace and most probably after a month or two we will again start manufacturing globes.

President.—Taking your output for the year 1930, in answer to question 5 you give your total output at 46,871 gross. That refers to phials?

Mr. Roy.—Phials and bottles.

President.—May I take it that that probably was for practical purposes the whole of your output for 1930?

Mr. Roy.—Yes.

President.—Why I am asking that is this: If you look at Form I, the Aggregate Expenditure statement, your total expenditure at works in 1930 was Rs. 2,24,480. If I divide that by 46,871 the resultant figure that I get may be taken as expenditure at the works on one gross of phials.

Mr. Roy.—For practical purposes the figure may be taken as 46,871 but the cost will be slightly more because some items have been left out, that is to say there is a small quantity of glassware other than phials.

President.—That we will consider later on. Assuming for the time being that the statement covers every item of expenditure at the works, may I take it that the aggregate figure divided by the number of gross of phials will give you the average expenditure at works per gross of phials?

Mr. Roy.—That is correct.

President.—Looking through the figures that you give in pieces and in gross I find that the number of gross of phials corresponding to one ton of glass varies from about 30 gross to a ton in one year to about 40 gross per ton in another year.

Mr. Roy.—The reason is this. In 1926 I give a figure of 52,000 gross as equal to 1,725 tons. The difference is due to the fact that in that year we manufactured big bottles in greater quantity than in subsequent years and one ton of melted glass will produce 40 gross ordinary phials whereas it will produce only 20 gross of big bottles.

President.—May we take it that that was rather an unusual feature, that as far as your normal production is concerned it depends mainly on the kind of phials that you have been selling in more recent years?

Mr. Roy.—That is so. In 1926 we manufactured bottles in greater quantities but in subsequent years the quantity of bottles have been reduced.

President.—In 1926 you manufactured bottles somewhat larger in size but in later years you have been producing smaller bottles and also your output has been smaller: is that the position?

Mr. Roy.—No. In 1927 the quantity has been increased to 55,990 gross whereas the total output of melted glass is 1,650. According to the figures of 1926 the quantity of glass produced in that year should be by calculation less than that but we had shown actually a bigger quantity and the reason is that in that year we produced more phials than bottles.

President.—As a matter of average calculation suppose I said that 35 gross to a ton would represent the normal average output in your factory, would that be correct?

Mr. Roy.—Yes.

President.—Our business is to fix the level of protection for the industry. You make phials and we have got to find what is a fair price for your phials and I have got to compare that with the price of imported phials. All these prices are stated in terms of gross and therefore unless I get these figures down to gross I wouldn't be able to work out my figures and it is necessary for me to get a certain ratio which I might apply in order to convert the weight figure into gross figure. If I were to take 35 gross to a ton would that be a correct figure to take?

Mr. Roy.—Yes.

President.—Taking your answer to question 12, these figures that you give of the quantities of materials required per ton of glass, is that a complete list?

Mr. Roy.—Yes, for ordinary bottle glass.

President.—If you add all these figures except coal you get 22.37 cwt. Would you be able to get 20 cwts. of glass out of 22.37 cwts. of materials?

Mr. Roy.—Yes.

President.—What is your loss in melting? Suppose you put 100 tons of materials in the furnace how much do you lose in the process of melting?

Mr. Roy.—Approximately 15 per cent.

President.—If you take a total figure of 22.37 cwts. and deduct 15 per cent. out of that, you get something less than 20 cwts. of melted glass.

Mr. Hodkin.—What sort of lime do you use?

Mr. Roy.—Slaked lime.

President.—In addition to these materials that you show you use probably a certain quantity of cullets, say corresponding to 1 cwt. of molten glass. Is that how I am to understand your figures?

Mr. Roy.—By using raw materials in that proportion, we make one ton of glass. I have included cullets in that.

President.—You have prepared the statement on the assumption that these materials in these quantities will give you one ton of glass. I also want to understand how you arrive at this figure of 1½ tons of coal. How exactly do you calculate?

Mr. Roy.—By actual calculation. That is the actual consumption in our factory.

President.—Can you describe to me roughly how you determine it?

Mr. Roy.—By consulting our books we have given the actual quantity of coal that is required at the factory year by year.

President.—If you take your total consumption of coal over a year and take the total output of glass over a year and divide the one by the other, you get this figure. Is that how you get it?

Mr. Roy.—Yes.

President.—If you look at Form II you will find that power and fuel cost you Rs. 31 per ton of glass and your cost of coal at the works is Rs. 8.

Mr. Roy.—At present it is Rs. 8 but in the year 1926 the cost of coal was about Rs. 11.

President.—I am taking 1930 when coal prices were about Rs. 8 in Calcutta.

Mr. S. Shaw.—Including cartage.

President.—And taking Rs. 8 as the average cost of coal delivered at the works you get nearly 4 tons of coal per ton of glass. That is not consistent with what you say about the basis on which you have calculated this figure.

Mr. Roy.—The reason is that with this fuel we could produce more glass.

President.—With the same fuel expenditure you could produce more glass?

Mr. Roy.—Yes. One boiler would have been sufficient for 3 furnaces and the consumption would have been less.

President.—That is to say your figure of 1½ tons per ton of glass is the figure of consumption that you get on an output corresponding to full capacity, is that what it amounts to?

Mr. Roy.—Yes to full capacity.

President.—In that case it cannot be based on actual figures of expenditure, because you didn't work to full capacity. Either it is a theoretical figure, that is to say the figure arrived at by taking your full capacity or it is an actual figure which you got from your books.

Mr. Roy.—This is a theoretical figure based on calculations. It was our idea that if we had worked our factory to full capacity, the consumption of coal would have been less and on that assumption of calculation we have given this figure of 1½ tons for one ton of glass.

Mr. Rahimtoola.—This is not what you actually get to-day?

Mr. Roy.—No.

President.—May I take it then on the actual reduced output that you are able to get in 1930 this figure of 4 tons of coal is probably nearer the mark?

Mr. Roy.—We have got to revise the figure.

President.—Would you mind looking into this question a little more carefully, because I should like to know on your actual figures, what was the consumption of coal that you attained on the kind of reduced output that you are getting now. I think it is possible if you are able to find a bigger market so as to raise your output, the coal consumption on your kind of furnace will come down to something very much lower. I should like to know what has been precisely the actual consumption on your present output. If you could look into that and let me have a note, it would be useful.

Mr. Roy.—On these figures the calculation we have arrived at is correct. It would be somewhere about 4 tons.

President.—If you were working to a capacity of 12 tons a day, obviously the figure would come down to something very much nearer the figure that you give here. That is your suggestion. Your suggestion is that with more or less the same expenditure of coal, you could increase your output. By how much could you increase it? You are getting now 3 to 4 tons a day. Could you do 12 tons a day on the present expenditure of coal?

Mr. Roy.—Only the consumption of coal in the boiler would be less. The consumption of coal would have been less if we had worked to our full capacity. The reason is that whenever there is a shortage of raw materials or if there is some other difficulty, we stop the work, but the consumption of coal is going on.

President.—You mean you stop manufacturing glass, but the furnace is kept on working?

Mr. Roy.—Yes.

Mr. Hodkin.—How much coal do you put in your boiler in a day?

Mr. Roy.—2½ tons.

Mr. Hodkin.—How much do you put in the furnace?

Mr. Roy.—When one small furnace is working, the consumption of coal in boiler is less in proportion because we are not to work with pump constantly. When two or three furnaces are working there is necessity for sufficient water; and we have to continue our pump even for 5 or 6 hours a day. For feeding the boiler, more water is required; but when one furnace is working, less steam is required and the feeding of the boiler is less. As you have seen, the consumption of coal is two tons a day for one furnace which is being worked at present.

President.—Roughly it is 4 tons.

Mr. Roy.—Yes, and in the case of annealing chamber one ton of coal is required per day.

President.—That would cover the whole expenditure on coal under present conditions?

Mr. Roy.—Yes.

Mr. Hodkin.—Your fuel and power cost you Rs. 31 per ton and you say you require one ton 10 cwts of coal per ton of glass. That would cost you Rs. 12.

President.—It is obviously a point I should like you to look into a little more carefully and send in a note later on regarding the coal consumption.

Mr. S. Shaw.—I think it would be better to weigh the coal we use.

President.—The fact that you have got to explain now is on your cost figures, your consumption of coal is very much higher than the figure that you have given in answer to this question. There is an obvious discrepancy which you have got to explain and I am asking you to send in a statement

giving us your explanation of this discrepancy. I think it is worthwhile doing so from your own point of view.

Mr. S. Shaw.—Yes.

President.—With regard to Question 13, I think you told us when we visited your works that you tried some sand which you obtained from Bengal.

Mr. Roy.—Yes.

President.—Where did you get this from?

Mr. Roy.—Magra, near Damodar.

President.—How far is it from Calcutta.

Mr. Roy.—50 to 60 miles.

President.—Did you try it on a large scale?

Mr. Roy.—No, we have not tried it in a large scale. We have tried it and we are still trying it. We are using it for ordinary greenish glass for medicine phials.

President.—Have you got the analysis of that sand?

Mr. Roy.—Yes.

President.—Who made the analysis?

Mr. Roy.—A private chemist.

President.—I should like to see the analysis of that sand.

Mr. Roy.—It is not here.

President.—Will you send it to us later?

Mr. Roy.—Yes.

President.—Have you got both the mechanical and the chemical analysis?

Mr. Roy.—We have only the chemical analysis.

President.—You are using very little of it now?

Mr. Roy.—Yes, very little, about $\frac{1}{4}$ th.

President.—I don't see anywhere here that you have given us the prices at the place of origin of sand and lime. You have given us the freight figures. What exactly do you pay for the sand itself at your works including freight?

Mr. Roy.—For Allahabad sand they charge us As. 10 and As. 9 according to the quality, f.o.r. Ultadanga.

President.—What does it cost you to take the sand from Ultadanga station to the works?

Mr. Roy.—It is 6 pies per maund.

President.—That is for first class sand?

Mr. Roy.—Yes.

President.—For second class sand you pay As. 9?

Mr. Roy.—Yes.

President.—The other costs remain the same.

Mr. Roy.—Yes.

President.—What do you do as regards lime?

Mr. Roy.—We purchase from dealers.

President.—What is the cost?

Mr. Roy.—Rs. 2 per maund.

Mr. Hodkin.—Is that burnt lime?

Mr. Roy.—Yes.

Mr. Hodkin.—What is the cost of Bengal sand?

Mr. Roy.—Originally when they collect the sand there, the price is 4 or 5 pies per maund, but when other charges are taken into account, it comes to 6 annas per maund.

Mr. Boag.—That is what you pay at your factory?

Mr. Roy.—Yes.

President.—What about your soda?

Mr. Roy.—We purchase from Messrs. Brunner Mond and Company.

President.—What do you pay?

Mr. Roy.—Rs. 145 per ton.

President.—You get it at the works?

Mr. Roy.—At the works we get it at Rs. 149.

President.—Rs. 145 at their godown?

Mr. Roy.—Yes.

President.—Rs. 4 per ton extra for delivery at the works.

Mr. Roy.—Yes.

President.—Coming to page 246 answer to question 44, can you tell me approximately, taking your sales last year and some of the more recent years, what proportion of your output is generally sold in the Calcutta city?

Mr. Roy.—Calcutta is the centre. Whatever goods we sell here is not consumed in Calcutta proper and the dealers send it to other parts of the country.

President.—That is to say while the sale takes place in Calcutta, the destination may be elsewhere.

Mr. Roy.—Yes.

President.—It is impossible for you to give any kind of estimate?

Mr. B. K. Shaw.—We are selling to the dealers who in their turn sell not only in Bengal but also in the mufassal. The dealers who purchase from us send the goods to other parts of the country.

President.—So far as the whole of your output is concerned you sell ex-works?

Mr. S. Shaw.—Yes.

President.—And transport falls on the dealer? He undertakes to transport and you sell ex-works?

Mr. Roy.—No, we sell to the party at his godown.

President.—When you sell your glass to the dealer, the contract is made on the basis of so much ex-works?

Mr. Roy.—Yes.

President.—The dealer pays you so much at the works. He transports them to the Railway Station. He transports them from the Railway Station to the destination. The transport is in his hands?

Mr. Roy.—Yes.

President.—That is practically how the whole of your business is done?

Mr. Roy.—Yes.

Mr. Rahimtoola.—The dealer does not take delivery at your godown?

Mr. Roy.—As soon as we receive the orders we send the goods to the godown of the dealers.

President.—The price that you get is the price delivered at the dealers' godown.

Mr. Roy.—Yes.

President.—In your reply to Question 49, you have given us your realised prices for five years?

Mr. Roy.—Yes.

President.—Can you give me the corresponding price say for 1931?

Mr. Roy.—We have got our accounts audited from January to June 1931 and from July to December the accounts have not yet been audited.

President.—The realised prices from January to June 1931 are more or less the same?

Mr. Roy.—Very nearly the same.

President.—What is your experience in recent months? Do prices show any upward tendency in the case of articles in which you are interested?

Mr. Roy.—Owing to the fluctuation in the Japanese exchange there is an upward tendency in the price of articles.

President.—Since September there has been an increase in the duty and the exchange fluctuation has been in our favour. I wonder whether you could tell us to what extent prices for the class of goods that you sell have gone up as a result of these two causes?

Mr. Roy.—Since 15th October we have increased the prices by 20 per cent.

President.—Since practically Japan has gone off the gold standard, a re-adjustment in the reverse direction will take place.

Mr. Roy.—Yes.

President.—Your main competitor in this line is Japan?

Mr. Roy.—Yes.

President.—Are you able to command in the market the same price as the Japanese phials?

Mr. Roy.—Not at present.

President.—Is there a prejudice against your goods?

Mr. Roy.—There is no prejudice. There is a great demand for country made goods and our goods have a good reputation. The difficulty is that people are averse to buying the country made articles at the same price at which they can get Japanese articles.

President.—What kind of difference do they expect?

Mr. Roy.—They say at such and such a price the Japanese articles can be bought. After paying freight and other things, if they can sell at such a price, why should we not, they ask, sell at least 25 per cent. less?

President.—It is unpatriotic to sell at the same rate?

Mr. Roy.—So they think.

President.—If your bottles fetch a price of Rs. 5, what would be the corresponding price of Japanese bottles? Would the difference be as high as one rupee?

Mr. Roy.—There is generally a difference of one rupee per gross.

Mr. S. Shaw.—In the case of ordinary phials whose price is Rs. 4 or 5, the difference will be one rupee, but in the case of bottles whose price is Rs. 20 or so, the difference will not be as high as one rupee.

President.—It is very difficult to say which are the classes of imported bottles with which Indian made bottles compete. It is very difficult to fix upon two classes of bottles and say these are comparable bottles. Suppose in trying to fix the measure of protection which the industry requires we do it on this basis: we take your cost as you give it here and then we work out that cost per gross of phials converting the weight figure into numbers and then we add depreciation and profit we compare that not with the import price, c.i.f., but with the price that you have actually realised because the price that you have realised is not your cost but the price that you can get in face of competition from imports: would that be all right?

Mr. Roy.—We should like to think it over before giving a reply.

President.—Supposing the Japanese price for a gross of phials is Rs. 7, now the obvious course for us is to take the Rs. 7 and compare your cost plus depreciation and profit with that figure of Rs. 7 and take the difference, if any, as the measure of protection that you require. But it may so happen that if the Japanese bottles are selling at Rs. 7 per gross you are not able to get more than Rs. 5. It may be that that particular class of Japanese bottles is superior to yours. It may also be that even

when the quality is the same, you being on the spot would be expected by the consumer to sell at a lower price. The price that you get may be an entirely different figure from the import price. Therefore it is better from your point of view to take the recent realised price and compare it with your cost and take the difference between the two as the measure of assistance that you require.

Mr. Roy.—I follow.

President.—Let us assume that your cost *plus* your depreciation and profit comes to Rs. 8 per gross. Unless you get Rs. 8 you would not be able to get a reasonable return on your investment and cover your costs. Now if we get from importers a figure of Rs. 7 as the price at which the Japanese bottles are being landed in Calcutta but actually the price that you are realising is Rs. 6 or Rs. 5. There are two ways in which we can determine the measure of protection required. We can take your Rs. 8 as the fair selling price and take Rs. 7 as the import price of Japanese bottles, the difference between the two is one rupee. We may consider that the measure of protection. The other method is to take Rs. 8 which is your fair selling price and Rs. 5 which is your actual realised price and deduct the one from the other and consider the difference, *viz.*, Rs. 3 as the measure of protection. You can consider this point and let me know later. You please let us know in any case your most recent realised price, that is, the price which you realise from July to December. Would you be able to send that on to us early next month?

Mr. Roy.—Yes.

President.—You have got your average realised price from January to June and we want your average realised price from July to December. As soon as you are able to get that figure, you please let us have it.

Mr. Roy.—Yes, I shall send it to you.

President.—There is a list of prices in the introductory statement that you give (page 235). Are these recent prices?

Mr. S. Shaw.—These rates we got from the dealers.

President.—When?

Mr. S. Shaw.—Before the rise in the Japanese exchange.

President.—I should like to know exactly when you collected these figures.

Mr. S. Shaw.—In the month of October 1931.

President.—Those were the prices that were ruling in the Calcutta market?

Mr. S. Shaw.—Yes.

President.—Are they wholesale prices?

Mr. S. Shaw.—Yes.

President.—As regards your block value (Reply to Question 54) how is it that you show nothing against land?

Mr. S. Shaw.—It is a leased land.

President.—You have not purchased it?

Mr. S. Shaw.—No.

President.—This figure that you give against plant and machinery, does that include your O'neal bottle blowing machine?

Mr. Roy.—Yes.

President.—What figure do you allow for that? How much is represented by the O'neal machine?

Mr. Roy.—Rs. 40,000.

President.—What I am trying to suggest is this. You have included in your plant and machinery an item which at present serves no purpose as far as your present operations are concerned; that is to say about Rs. 40,000 is dead capital.

Mr. Roy.—Yes.

President.—What is the rest of this plant and machinery? Still there is a lakh left.

Mr. Roy.—Air compressors, 3 electric motors, 3 boilers, 3 or 4 pumps, producers and an oil engine.

President.—What about the miscellaneous assets? What do you include in that item? It is a fairly considerable figure. Are they your good debts?

Mr. Roy.—No.

President.—I want to know whether your miscellaneous assets represent things which are not fixed capital expenditure?

Mr. Roy.—There is no capital expenditure.

Mr. Shaw.—That is really working capital.

President.—Is it really working capital?

Mr. Roy.—We have taken that from the Balance Sheet.

President.—I want to be clear on this point. As far as your fixed capital expenditure is concerned as distinct from your working capital, it is represented by items (c) and (d), as they stand in the books.

Mr. Roy.—Yes.

President.—The item (e) is really part of your working finance?

Mr. Roy.—Yes.

President.—So that in trying to get the original block value of your property I should take item (d) and item (e) and add the whole of depreciation to that. That gives you the original block value of your property. Plant and machinery includes everything except buildings so that the two together give the present block value. The miscellaneous assets can be left out and included in the working capital.

Mr. S. Shaw.—Yes.

President.—Taking question 65 your stocks of raw materials and your finished goods and your outstandings together at 31st December, 1930, amount to Rs. 1,67,000.

Mr. S. Shaw.—That is the stock.

President.—That is precisely therefore your working capital and the whole of that must be taken out of your block account. Taking the aggregate figure in Form I, viz., Rs. 2,24,480 that was your gross expenditure in 1930 and the working finance that you require is Rs. 1,67,000?

Mr. S. Shaw.—Yes.

President.—That represents the cost of nine months' output, taking your total expenditure for the year as Rs. 2,24,480 and the total working finance as Rs. 1,67,000. In assuming a fair price for your products we have got to allow a figure on account of interest on working capital and we have got to try and estimate what is a fair allowance for your working capital. On the figures that you have given your working expenditure is three-fourths of the expenditure required during the year. 1930 has been rather a difficult year from the point of view of sales; if you had a normal kind of year probably the amounts of outstandings and stocks would be less than in 1930.

Mr. Roy.—As far as we have seen 1931 has been worse.

Mr. Boag.—What about 1928-29; was that better?

Mr. Roy.—It was a little better but the outstanding figure is almost the same.

President.—If you take the last three years probably you can take 1930 as a normal figure. I take it that of these two statements Forms I and II, Form I represents your actual figures of expenditure and Form II is the estimate that you have made of the average costs?

Mr. Roy.—Yes.

President.—I find, taking the various individual items in Form II, that the averages are not exact. These figures are really approximate averages?

Mr. Roy.—Yes.

President.—So that if we want to base our calculations on actual figures it is better for us to proceed on Form I?

Mr. Roy.—Yes.

President.—Can you tell me how you worked out these output figures in tons in Form I? For 1930 you give your total output as 1,150 tons; how did you get that figure?

Mr. Roy.—I took the weight of the raw materials used and worked from that end.

President.—You took all the raw materials and allowed a certain wastage in melting and a certain wastage in breakages?

Mr. Roy.—We have not allowed for any breakages, only wastage.

President.—So that from this figure, in order to get the finished glass we have got to deduct 15 to 20 per cent. which represents breakages?

Mr. Roy.—Yes. I have not deducted breakages because they are used again.

President.—Yes, but in order to get the actual cost that you incur per unit of finished glass I have got to make a deduction on account of breakage and divide the total figure by that to get the cost per ton of finished glass.

Mr. Roy.—Yes, I have got to deduct 15 to 20 per cent. for breakages. It is very nearly 20 per cent.

President.—That would slightly put up your cost per ton of finished glass. It would be more than Rs. 190 given in Form II.

Mr. Roy.—That is so.

President.—This figure of selling expenses—item 7—what does that represent? Does that represent merely commission?

Mr. Roy.—Commission, godown charges, cartage and so on.

President.—You told me you delivered your articles at dealers' godown. May I take this as your cost price ex-dealers godown? Every item is covered?

Mr. Roy.—Yes.

President.—If I add these figures and allow for depreciation and profit, then I get your fair selling price for goods delivered at the dealers godown?

Mr. Roy.—That is correct.

President.—These repairs that you show here in item 5, are they entirely repairs to furnace?

Mr. Roy.—Furnace and buildings.

President.—How long have you had this tank furnace?

Mr. Roy.—Since 1919.

President.—And you incur an annual expenditure of about Rs. 2,800 on it?

Mr. Roy.—This item includes repairs to factory buildings also.

President.—Can you tell me from these figures your annual commitment on account of repairs to the furnace?

Mr. S. Shaw.—We generally keep our accounts in this way (statement handed in).

President.—Where did you get this figure of Rs. 2,813 from (Form I, item 5)?

Mr. S. Shaw.—This is shown in the balance sheet (handed in). We will send you five more copies of the Balance Sheet.

Mr. Bahimtoola.—Why do you make a statement in answer to question 6 that your factory is not advantageously situated?

Mr. Roy.—Because it is not on the railway lines.

Mr. Rahimtoola.—It is not very far off?

Mr. Roy.—It would have been advantageous if we could get the railway siding inside our factory.

Mr. Rahimtoola.—In answer to question 6 (d) you say “labour is available”. I take it you mean that skilled labour also is available?

Mr. Roy.—Yes, we have them trained.

Mr. Rahimtoola.—Have you ever worked the three furnaces together?

Mr. S. Shaw.—No. In 1928 we worked two furnaces together.

Mr. Rahimtoola.—Then how do you calculate the maximum capacity of the three furnaces at 12 tons?

Mr. Roy.—We know the capacity of each furnace and if we work the three furnaces together it will produce so many tons per day.

Mr. Rahimtoola.—You have calculated it by working each furnace individually?

Mr. S. Shaw.—Yes.

Mr. Rahimtoola.—You say about the market that you deliver to the dealers here and you do not know where your goods go. What is the percentage that you give to the dealer about whose destination you are not aware?

Mr. S. Shaw.—About 50 per cent.

Mr. Rahimtoola.—The rest goes to the other provinces?

Mr. S. Shaw.—About 50 per cent. to the dealers, say about 40 per cent. to the direct consumer.

Mr. Rahimtoola.—Where?

Mr. Roy.—In Bengal, in Calcutta, and in Dacca.

Mr. Rahimtoola.—You don't send anywhere outside the Bengal Presidency.

Mr. Roy.—We send a small percentage. Even to Madras and Central Provinces we send. It will not be even 10 per cent.

Mr. Rahimtoola.—The principal markets where your products go are Bengal, Madras, Punjab, Rangoon and Central Provinces. Barring the Bengal Presidency the quantity sent outside is very negligible or practically nil?

Mr. Roy.—10 per cent.

Mr. Rahimtoola.—10 per cent. of your output goes outside?

Mr. Roy.—Yes, direct from us.

Mr. Rahimtoola.—You mean you have got agents there?

Mr. Roy.—No. We send on orders.

Mr. Rahimtoola.—In answer to question 49 (1) you have not supplied us with import prices. Do I understand that you don't keep yourself in touch with import prices?

Mr. Roy.—We could not collect the information.

Mr. Rahimtoola.—You keep yourself in touch with the present ruling prices in the market.

President.—But you have given us some prices in the list sent by you.

Mr. Roy.—Yes. We have them from markets.

Mr. Rahimtoola.—But they are old prices. Why I referred to it is this. On page 6 of the introductory chapter, you have mentioned that your cost price per gross in Calcutta is Rs. 3 for 1 oz. dispensing phial as against the Japanese selling price of Rs. 3 in Calcutta. I don't understand your statement which you have made here that you don't get the same price for your goods as against the imported goods. Here I find the prices exactly equal. Do you realise that price.

Mr. Roy.—We had some special orders for 1 oz. phials and we charged them Rs. 3 and therefore I have quoted that price. Rs. 3 is our cost price, whereas Japan is selling at Rs. 3. I ought to get more than Rs. 3.

Mr. Rahimtoola.—Your complaint is that you are not getting the price?

Mr. Roy.—In some cases where I am getting the same price, I am giving it.

Mr. Rahimtoola.—That statement which you made requires to be modified. Not in all cases the bazaar treats you unfairly. It is only in some cases.

Mr. Roy.—It is in the case of most of the phials, but for ordinary 1 oz. phials, we don't get Rs. 3 per gross.

Mr. Rahimtoola.—Take another case, 6 oz. dispensing phial. In both cases it is Rs. 6.

President.—What do you mean by "cost price"?

Mr. Roy.—The cost of producing the phials.

President.—Do you make any allowance for profit?

Mr. Roy.—Without profit.

President.—This is the sort of price which, if you realise it, will cover your expenses?

Mr. Roy.—Yes, but it won't bring in any profit to us.

Mr. Rahimtoola.—In other words you will be compelled to sell at this price, because Japan is selling at this price in spite of the fact that you are not able to make any profit?

Mr. Roy.—Quite so.

Mr. Rahimtoola.—In answer to question 51 you have made a complaint that public bodies and Government are not buying from you. Have you ever filled in a tender for Government or public bodies?

Mr. Roy.—We tried to secure Government orders through our agent, but that gentleman failed. Twice he approached Government. We approached this gentleman who is our agent to approach Government, but he could not secure the order.

Mr. Rahimtoola.—Is there no system of public tender?

Mr. Roy.—They publish the tender in the gazette.

Mr. Rahimtoola.—You have never filled in a tender? You only tried influence?

Mr. Roy.—Yes.

Mr. Rahimtoola.—Have you got any complaints regarding railway freights?

Mr. Roy.—In our opinion the railway freights are too high. As regards finished goods the rate we are paying is too exorbitant. In their railway guide, pamphlet No. II, they quote per maund for finished bottles from Howrah to Naini As. 11, whereas they actually charge us Rs. 1-2-0. We have been fighting over this matter.

President.—The importer will get the same freight. You are really asking for an arrangement which will benefit you at the expense of other Indian factories, but it won't benefit you at the expense of the importer as freight would be the same from Howrah to up-country centres.

Mr. Roy.—The manufacturer should derive the benefit. That is why we want a special rate. They are charging us at the same rate as on imported goods. We have been fighting over this for the last 3 months. To verify it we have written to Naini and Howrah.

President.—They get special station to station rates.

Mr. Roy.—For sand they charge As. 4-10 per maund. As regards railway freight we want concession rates for raw materials also.

Mr. Rahimtoola.—You have said in answer to question 48 that you find the competition from Japan keenest on all classes of glasswares. Does it mean competition with all the products that you turn out?

Mr. Roy.—Yes.

Mr. Rahimtoola.—Japan is the only competitor in the products that you manufacture?

Mr. Roy.—Yes.

Mr. Rahimtoola.—Czechoslovakia and Germany do not enter into it at all?

Mr. Roy.—At present we have no competition with Germany. 5 or 6 years ago there was some competition between Germany and India.

Mr. Rahimtoola.—In answer to question 64 you say the rates of depreciation allowed by Income-tax Authorities are not known to you. How do you arrive at the depreciation? You have set aside Rs. 2,14,498-10-0 for depreciation.

Mr. Roy.—In the Glass Industry the plant deteriorates rapidly and the sheds also deteriorate rapidly. Whatever depreciation we have given the Income-tax Officer approved. We don't know what their proportion is.

President.—What is your proportion?

Mr. Roy.—We have allowed 10 per cent. for the mould as well as for the furnace.

Mr. Shaw.—There is no fixed percentage. We simply allow a lump sum.

Mr. Rahimtoola.—Out of the profits you make?

Mr. Roy.—Whether there is any profit or not we allow depreciation.

Mr. Rahimtoola.—You add to your loss?

Mr. Roy.—Yes.

President.—You have got to meet your working expenses; you have got to pay for your labour and if there is any money left over you set aside a certain amount of depreciation. If there is still money left over, you distribute dividends, but if there is nothing left over after meeting the working expenses, you cannot afford to set aside anything for depreciation.

Mr. Roy.—During the last 12 years we have not made any profit.

Mr. Rahimtoola.—Still you have set aside so much for depreciation without making any profit, is that correct?

Mr. Roy.—Whatever we add to the moulds or furnace which are practically of no value, we give it in depreciation account.

Mr. Hodkin.—It is repairs and replacements and not depreciation?

Mr. Roy.—Yes. As you may term it.

Mr. Rahimtoola.—In answer to question 60 you say "At present we have no contemplation for the replacement or extension of plants, etc."

Mr. Roy.—We are not satisfied. We have ideas of replacing mouth blowing by machinery, but we have no money at our disposal.

Mr. Rahimtoola.—That is perfectly true, but the answer doesn't say that. The answer says that you are perfectly satisfied with that. It doesn't say that owing to financial difficulties you are not able to do what you would like to do.

Mr. Roy.—We have an idea, but financial difficulties stand in the way.

Mr. Boag.—I should like to ask a little more information about your refractory materials. You have 3 furnaces.

Mr. Roy.—Yes.

Mr. Boag.—Are they of the same size?

Mr. Roy.—They are of different sizes.

Mr. Boag.—What is the size of each?

Mr. Roy.—We have got 4 furnaces. Three are in working condition. One has been left unfinished.

Mr. Boag.—What is the capacity of the big furnace?

Mr. Roy.—It contains 35 tons of glass yielding 5½ tons a day; another furnace 18 tons yielding 3½ tons per day and the capacity of the third furnace is 12 tons yielding about 3 tons.

Mr. Boag.—How do you buy your refractory materials? In answer to question 23 you say you get your refractory materials from Messrs. Burn and Company of Raniganj and Messrs. Bird and Company of Kumardhubi and fire-bricks and tiles works of Mogma.

Mr. Roy.—Yes.

Mr. Boag.—Do you buy all your fire-bricks from one firm at a time or do you buy special materials from special firms?

Mr. Shaw.—Silica clay and silica bricks we purchase from Messrs. Bird and Company and ordinary fire-bricks and tiles from Mogma and the special fire-bricks from Messrs. Burn and Company, but the prices are also different.

Mr. Boag.—What quantity of these materials do you use in a year? How many wagon loads do you get in a year?

Mr. Shaw.—We could not tell you the exact quantity, but it would be about 4 wagons a year.

Mr. Boag.—What value does that represent?

Mr. Roy.—I could not give you the actual figure at the moment.

Mr. Boag.—Can you tell me approximately?

Mr. Shaw.—We cannot give you the actual figure, but it would be Rs. 1,500 to Rs. 2,000 a year.

Mr. Boag.—You say that the average rate of wages is Rs. 20 a head per month. Do you pay your labour monthly or by piece work?

Mr. Roy.—We pay them monthly, and also by piece work.

Mr. Boag.—You pay part of your labour on a monthly basis and part of your labour by piece work?

Mr. Roy.—The men who are blowing are paid by piece work and the others are paid monthly.

Mr. Boag.—How do you pay them? How do you calculate their wages?

Mr. Roy.—On the actual number of bottles they make varying from 50 to 25. 3½ annas is the fixed rate we pay them. The number varies according to the size. For example we pay 3½ annas for 50 in the case of 2 oz. and for 25 in the case of 12 oz. bottles.

Mr. Boag.—On an average what do they earn per head per month?

Mr. Roy.—The average earning is Rs. 35 per head per month.

Mr. Boag.—The only other thing that I want to ask you about it with reference to your answer to question 67 in which you refer to certain attempts which have been made to start a soda factory in Bengal. Could you give us any details about that?

Mr. Roy.—A gentleman who is a chemist has made experiments with the raw material—saji matti. We have seen that sample. He has sent us a little quantity of that. We are told that he has got the help of a capitalist who has promised to finance him.

Mr. Boag.—He has not yet started?

Mr. Roy.—No. His experiment was successful. He came to our office and gave us the sample.

Mr. Boag.—Where does he think of starting a factory?

Mr. Roy.—He has not yet decided. There is a factory in Kathiawar, which we understand is manufacturing soda.

Mr. Boag.—In your reply to the same question, you refer to the absence of any organisation among manufacturers. You have no arrangement with

other factories regarding the sale of your output or the price at which you sell your output?

Mr. Roy.—Among the local manufacturers there is no organisation. Recently we have started an organisation under the style of Glass Manufacturers Association (Bengal).

Mr. Boag.—Are you a member of that Association?

Mr. Roy.—Yes. It was only recently started.

Mr. Boag.—For the purpose of this enquiry?

President.—Are you thinking of the Indian Glass Manufacturers Association or is it a separate one?

Mr. Roy.—It is a separate one. In every province there should be a separate Glass Manufacturers Association; otherwise they cannot go on.

President.—How many members have you got in your Association?

Mr. Roy.—There are only 8 members and 5 are standing out.

Mr. Rahimtoola.—Altogether are there 13 factories in Bengal?

Mr. Roy.—Yes.

Mr. Hodkin.—In your answer to question 8, you say that your goods are not equal in quality to imported glassware, but they are almost equal in appearance. What do you exactly mean by that?

Mr. Roy.—We mean that the imported bottles as regards uniformity and capacity are superior to our make because they are made by machine whereas we are making them with mouth blowing. The result is that however perfectly we may manufacture, the bottles are not uniform and are not of the same capacity.

Mr. Hodkin.—Therefore you have no right to expect to get the same price.

Mr. Roy.—But the quality of our bottles is not inferior. We may compete with them and bring the quality also to their level provided we get the same price.

Mr. Hodkin.—You cannot expect to get the same price if your quality is not the same.

Mr. Roy.—Because we get less price we cannot improve. Now we give more attention to the side of mass production.

Mr. Hodkin.—You say you use burnt lime in your batch. Supposing you use your lime immediately you get it from the supplier, it may be 90 per cent. of lime but if you use it after it has been in your yard for a few weeks, it may be only 80 per cent. lime due to the fact that it is gradually slaking.

Mr. Roy.—We are not sure of that.

Mr. Hodkin.—That is what will actually happen. Therefore the quality of your glass must vary continually. If you buy burnt lime, that is entirely lime, that goes into the glass as such. If you add, as you say, 224 lbs. of lime, that would go into your melt and produce 2 cwts. of glass. But if it has been lying in your yard, it takes up moisture from the atmosphere and takes up also carbon-dioxide. Instead of being wholly lime, it is partly lime and partly volatile material. Therefore unless you determine exactly the proportion of volatile material from time to time, the amount of lime you are putting into your glass is going to vary and therefore the quality of your glass is going to vary. If it varies you will never be able to work the machine because you can only provide machines for glass of constant composition or constant quality. Evidently you don't have any check on your composition?

Mr. Roy.—No.

Mr. Hodkin.—The same thing applies with regard to refractories. You do not know anything about the composition of your refractories?

Mr. Roy.—No.

Mr. Hodkin.—You say you are satisfied with them?

Mr. Roy.—All these refractory materials which we are getting now are manufactured by Messrs. Bird and Company and Burn and Company and they are satisfactory. Therefore we say that we are satisfied with them. Formerly we used to buy materials from Mogma fire-bricks and tiles syndicates and the result of that was that our furnaces did not last more than four or five months. By using a better quality of silica bricks from Bird and Company we are getting better result. The crown of the furnace is made of silica bricks, but the bottom and the sides of the furnace deteriorate in six months. By repairing them we may continue for a year when the whole structure has to be brought down; otherwise we cannot undertake repairs.

Mr. Hodkin.—Do you actually support your arch separately from the walls of the furnace?

Mr. Roy.—No, it is attached to the walls, but we have an idea to make it separate, so that we may repair the walls and leave the arch alone.

Mr. Hodkin.—You don't consider 6 months, which is the life of your furnace, as satisfactory?

Mr. Roy.—No.

Mr. Rahimtoola.—Do you intend taking any step in that direction?

Mr. Roy.—We intend doing many things but we cannot do anything for want of finance. It requires heavy capital outlay.

Mr. Hodkin.—In reply to question 41, you say that in foreign countries they manipulate their labour at a lower cost. What you mean is that they don't employ as many people as in India.

Mr. Roy.—The idea of putting these things here is this. In foreign countries as far as we know they use machinery for blowing, for carrying and for annealing whereas in India we do all the processes by hand.

Mr. Hodkin.—But you say they manipulate their labour at a lower cost. You don't pay your labour at the same rate as they pay in other countries except possibly Japan. Even in Japan they pay higher rates of wages than you pay.

President.—What you are thinking of is the cost of labour per ton of glass, not the rate of wages?

Mr. Roy.—Because we require more men. For instance in the annealing chamber, if there is a big automatic annealing chamber one foreman would be quite sufficient whereas for the same amount of work we require three men.

President.—This is the labour cost per unit of glass and not the rate of wages per man.

Mr. Hodkin.—That may be so. As a matter of fact, the wages here represent 34 per cent. of the total cost which is within one or two per cent. of the cost of labour in other countries. They all vary between 32 and 38 per cent., so that your actual labour cost for your bottles is of the same category as it is in other countries so far as percentages are concerned; but certainly not so far as costs are concerned. Therefore you have an advantage from the point of view of your labour and not a disadvantage.

Mr. Roy.—If the labour cost is the same and if we have an advantage, how is it that our competitors are selling at a lower price?

Mr. Hodkin.—Because your raw materials and coal are costing you more and you are also using more. That is where your main disadvantage is.

Mr. Roy.—You think that we use more raw materials?

Mr. Hodkin.—Yes, and you also use more coal in proportion. Whereas their percentage on their total cost is say round about 30 per cent., yours is over 40.

President.—Is it an argument that machinery would be uneconomical in this country?

Mr. Hodkin.—They are perfectly satisfied with the furnace and the way they operate and I say they are not satisfactory.

Mr. Roy.—If we introduce machinery, will not the cost be less than what it is now?

Mr. Hodkin.—Exactly, you may be able to operate the machines with your labour at your present rates more cheaply than they. You need only the same number of people and you could operate your machines at a lower cost and therefore you ought to be able to manufacture cheaper by using machinery. But you will have to improve your furnace production at the same time in order to bring your cost into line with theirs.

Mr. Roy.—You have just now told us that our fuel cost is far greater than that of other countries. May I ask you what will be their cost of fuel per ton of glass?

Mr. Hodkin.—In the best factories where machines are being used, they manage to get one ton of finished ware, that is actually good bottles or good other things, working with tank furnaces and machines, for half a ton of coal. That is the best. The average figure is something like 22 cwts. of coal for one ton of finished glass. That is not melted glass but actually finished ware including all the coal used for power production and for annealing. They don't use kilns now such as you have. They use automatic levers, with the result that their consumption of coal is a great deal less so that you have a great many things to do with your furnace production, although you have progressed in other ways. You are using tank furnaces with producer gas but you are by no means perfect.

Mr. Roy.—As you have visited our factory, may I ask you whether the process of gas producing is defective in our factory?

Mr. Hodkin.—That I do not know. I should need to see how much coal you put down and I should have to analyse the gas also. Otherwise it is impossible to tell you whether you are operating economically or not. In the matter of coal, the amount of coal that you are using is distinctly excessive and it is not $1\frac{1}{2}$ tons, it is nearly $3\frac{1}{2}$ tons.

Mr. Roy.—For the last three years it shows that the coal consumption is nearly $3\frac{1}{2}$ tons but we thought if we worked to our full capacity it would be $1\frac{1}{2}$ tons.

Mr. Hodkin.—I don't think you would be able to do that.

Mr. Roy.—But that was our idea.

Messrs. M. N. Mehta Glass Factory, Calcutta.**A.—WRITTEN.**(1) *Letter dated the 28th October, 1931.***Re PROTECTION FOR THE GLASS INDUSTRY IN INDIA.**

Referring to the decision of the Government of India to refer to the Tariff Board for examination representations from certain Glass Manufacturers requesting that protection may be extended to the Glass Industry in India along with any other representations which may be brought to its notice, we beg to submit the following representation for the favourable consideration of the Tariff Board:—

We have recently established a factory in Calcutta for the manufacture of glass bangles and have equipped it with the latest machinery and appliances for the manufacture of all classes of these articles.

Glass bangles had previously been manufactured in Firozabad and other towns on a small scale but until recently there were no attempts to manufacture bangles on an industrial scale.

Glass bangles are not manufactured in Great Britain or in any of the British Dominions but they are imported into India from Czechoslovakia and Japan—the bulk of the imports being from Japan where they manufacture the cheaper kinds, principally reshami or silky bangles.

When factories for manufacturing glass bangles on an industrial scale were started in India about a year ago, Japanese manufacturers reduced their prices by about 30 per cent. and they declared their determination to make further reductions in order to kill the competition of Indian made goods.

The abandonment of the gold standard by the British Government and its effect on Indian exchange with Japan, increasing the cost of yen from about Rs. 138 per 100 yen to Rs. 175 at Rs. 180 per 100 yen, and the enhancement of the import duty from 40 per cent. to 50 per cent., is acting as a temporary check to the importation of glass bangles from Japan on a large scale but when the exchange value of the yen in relation to Indian currency is stabilised fresh efforts will be made by Japanese manufacturers to intensify their competition with Indian made bangles.

That Japanese manufacturers are able to compete successfully against goods of indigenous manufacture, even in face of a protective tariff has been demonstrated in the case of Japanese piece goods and we feel that Japanese makers will spare no efforts to retain their hold on the glass bangles trade with India. In the past, the Japanese Government have helped manufacturers in their country to capture export markets by granting them subsidies and in the present instance they are certain to help the manufacturers of glass bangles in their competition against the newly started bangle industry of India.

Glass bangles are an article of necessity to the women of India as all women, except those who are widows, are by universal custom expected to wear bangles—of gold or silver if they can afford them or of glass at least if they cannot afford the more costly ones.

Up to the year 1921 glass bangles were subject to an import duty of 11 per cent. but in the budget for 1921-22 it was proposed to increase the duty to 20 per cent.

As the largest importers of glass bangles in Calcutta we protested to the Government of India against the proposed increase of duty and an amendment was moved at our suggestion in the Council of State that the duty on glass bangles be not increased but that it be retained at the then existing rate of 11 per cent. This amendment was, however, not accepted as the

majority of members of the Council of State were of opinion that a higher rate of duty would help indigenous manufacturers and act as a protection against foreign competition.

The manufacture of glass bangles in India has increased since then but although the import duty has been gradually increased to 50 per cent. the importation from foreign countries has continued on a large scale.

As we have stated above, we have recently established a factory in Calcutta for the manufacture of glass bangles and along with the other indigenous makers we are in a position to meet the entire demand in India if the industry is helped to secure a firm footing and to compete successfully against imports from foreign countries.

We feel that it would not be asking too much to suggest that a prohibitive duty of 100 per cent. be imposed on glass bangles imported from foreign countries in order to help the indigenous industry in its struggle against foreign competition.

The Indian glass bangles industry affords employment to a large number of workmen and if it is saved from extinction and afforded an opportunity of establishing itself on a firm footing it will in future find work for an even larger number and will eventually yield a large revenue to Government in the form of income and other taxes.

We feel confident that the members of the Tariff Board will give this representation their favourable consideration and will recommend Government to afford substantial protection to a struggling indigenous industry.

(2) *Letter dated the 16th December, 1931, from Mr. M. N. Mehta, Calcutta.*

Referring to your letter No. 666, dated Bombay, the 16th November, 1931, we enclose answers to the questionnaire sent by you.

As our factory was only started at the beginning of the current year we regret we have been unable to give the figure for the past five years required in some of the questions.

Enclosure.

Answers to Questionnaire for Glass Manufacturers.

1. Our works are owned by our Sole Proprietor Mr. P. M. N. Mehta.
2. The entire capital has been provided by Mr. P. M. N. Mehta and the entire management is in the hands of Indians.
3. Our works commenced manufacture on 1st January, 1931.
4. As at present equipped the full capacity of our works is 10,000 dozen pairs per day.
5. (a) We manufacture Glass Bangles only.
(b) As we started manufacture on 1st January 1931 only we cannot give the figures of manufacture for the last five years.
6. Our factory is situated at No. 82, Ultadanga Main Road, Calcutta, and we consider it advantageously situated in respect of:—
 - (a) vicinity to the areas from which our principal raw materials are drawn,
 - (b) vicinity to the coalfields and sources of electric power and gas,
 - (c) vicinity to the important markets of Bengal, Bihar and Orissa and the United Provinces,
 - (d) an abundant labour supply.
7. We consider that the most important factors in selecting the site for a Glass Factory in India are vicinity to the areas from which raw materials are obtained and to the sources of power and coal and where labour is cheap and abundant.

8. We consider glass bangles manufactured by us are equal in quality and appearance to bangles imported from Japan from where the same class of bangles have hitherto been imported. They do not command the same price as buyers have the idea that goods manufactured locally should be obtainable at a lower price than imported goods.

9. The production of glass bangles at our works is carried out throughout the year but the output is less during the rainy season and this fact contributes to an increase in the cost of production.

10. The principal raw materials used in our works for the manufacture of glass bangles are soda ash, lime, zinc oxide, barium carbonate, selenium, cadmium sulphide, borax, oranium, oxide of cobalt and sand.

11. We are unable to state the annual requirements of raw materials as we have only started manufacture at the beginning of the present year.

12. To produce one ton of glass 12 per cent. more of sand ash and sand are required.

13. Sand is obtained from Allahabad and the other materials are imported from Great Britain, the Continent of Europe and the United States of America.

14. Sand is collected in Naini (Allahabad) and is sent from there by rail to our factory.

15. We buy the sand from the suppliers in Allahabad and no royalty is paid by us.

16. We do not collect any raw material ourselves and cannot give the details required in this question.

17. We do not hold any concessions as regards the supply of raw materials.

18. Except sand all raw materials are imported from abroad.

19. We do not think there is any immediate prospect of the manufacture of any of the raw materials in India which are now imported.

20. We find the raw materials now used by us suitable for the manufacture of glass bangles.

21. Japanese manufacturers use the same materials as ourselves for the manufacture of glass bangles.

22. We do not manufacture crucibles and pots but import them from Japan and the voyage from Japan has no effect on the life of the crucibles or pots.

23. Our furnace refractory materials are satisfactory.

24. The processes employed in the manufacture of glass bangles require expert supervision and we have had to import skilled workmen from abroad.

25. Two imported labourers are now employed by us. Indian labourers are being trained to take their place and we find that the Indian labourers quickly learn the methods of the imported labourers.

26. Indian labourers are being trained in the methods and processes employed and readily acquire efficiency in them.

27. In the manufacture of glass bangles skilled labour cannot be replaced by automatic or semi-automatic machines.

28. We employ machinery as far as possible but in the manufacture of glass bangles certain portion must be done by hand and this prevents the more extensive use of machinery.

29. The high temperature and humidity in Calcutta effects the efficiency of Indian workmen as compared with other countries.

30. We cannot give the figures required in (a) and (b) but we may state in reply to (3) that 150 workmen are now employed by us.

31. Local labourers prefer to stay with their families outside the factory.

32. Steam coal is the principal fuel used in our works and is available in sufficient quantities.

33. Steam coal is brought from the Asansol district. The freight on it to Ultadanga is Rs. 4 per ton and the total cost delivered at our works (including freight) is Rs. 9 per ton.

34. Coal is applied directly in the furnaces in its natural state.

35. Electric power is used for running shafts and gas is used in certain finishing processes.

36. One ton of coal is required for the manufacture of the same weight of glass.

37. We consider our works are sufficiently large for the class of goods we manufacture to ensure economy in working.

38. It is difficult to describe the processes of manufacturing bangles or to give a brief description of the plant and machinery.

39. Our factory having been erected only this year the machinery and other equipment and the processes of manufacture are the most up-to-date. An extension of the factory and the resultant larger output would materially reduce the cost of production.

40. Having only recently started manufacture we have installed the most recent plant and machinery and are using the latest processes of manufacture.

41. The processes of manufacturing bangles in our factory are the same as those in Japan and there is no difference in them.

42. The machines and plant installed in our factory have been imported from Japan but they could be made in India.

43. It is not possible to state what is the total Indian production of glass bangles as no statistics are available.

44. The principal markets for glass bangles are Bengal, Bihar and Orissa, United Provinces, Central Provinces, Chota Nagpur and the Madras and Bombay Presidencies.

45. The rate of railway freight for glass bangles differs according to the distance and we have no advantage in this respect over imported goods.

(b) Railway freight is always charged on gross weight. The normal ratio of nett weight to gross weight is 100 lbs. nett to 146 lbs. gross.

46. The same rates of freight are paid on Indian made goods as on those imported from abroad.

47. We have no idea as to the possibility of exporting other classes of glassware to foreign countries but we do not consider that any export trade of importance can be done in glass bangles as these are almost exclusively used by Indian women.

48. The most serious competition is from Japanese manufacturers as they supply the Indian market with glass bangles at continuously reduced prices.

49. We are unable to give the figures of the past five years as our factory was only started during the current year.

50. The rates at which glass bangles are imported into India from Japan are approximately 2 sen per dozen pairs c.i.f.

(b) Landing charges amount to about 1 per cent. and import duty until recently was 40 per cent. but has now been enhanced to 50 per cent.

51. Our products are not purchased by Government or other public bodies as glass bangles are an article entirely used by women.

52. We consider that as compared with foreign manufacturers the Indian manufacturer of glass bangles is at a disadvantage as he has to import almost all his raw materials from abroad and has to pay heavy custom duties on these as well as freight and other charges.

53. We know that Japanese manufacturers are receiving substantial help from their Government in the shape of subsidies and low rates of freights. The freight on glass bangles from Kobe is about yen 10 per ton.

(a) Owing to the help they receive from their Government Japanese manufacturers are able to sell at prices which would otherwise show them a heavy loss.

54. The total block value of our factory for manufacturing glass bangles is rupees two lacs, including machineries plant, and goods manufactured.

55. As our factory has been started during the current year we have not yet written off any sum for depreciation.

56. The present day cost of erecting a Glass Bangles Factory similar to ours would be approximately the same as our cost divided under the following heads:—

	Rs.
Building and land	50,000
Plant and machinery	50,000
	<hr/>
Total	1,00,000

We do not think the cost of operating a new works established now would differ from our cost of operating.

57. As our factory is a private concern we cannot furnish the figure required in this question.

58. We have not issued any debentures.

59. As we have only started manufacture recently we have not yet had an opportunity of creating a reserve fund.

60. About 2 lacs of rupees would be required to enlarge the factory in order to reduce the proportion of cost of manufacture and overhead charges.

61. The two forms annexed to the questionnaire have been filled up and are attached hereto.

62. The percentage of wastage including breakage in our factory is about 15 per cent. As we have only recently started manufacture we cannot answer the second part of this question.

63. As we manufacture glass bangles only we cannot particulars of variations in expenditure between the different classes of glassware.

64. The income-tax authorities allow 15 per cent. depreciation on machinery but this rate is not sufficient and we consider that it should be increased to 30 per cent. Machinery, such as is used in the manufacture of glass bangles depreciate more rapidly than in the case of other industries and we do not think the present rate of 15 per cent. is sufficient.

65. The average value of (a) stocks of raw materials and fuel held by us is Rs. 45,000, of finished goods Rs. 40,000 and (b) the average outstandings in respect of goods sold by us amount to Rs. 40,000.

66. We have no head office other than our own office in Calcutta. The firm being a private concern is managed by the proprietor himself, and no expenditure is incurred under headings (a) and (b).

67. The conditions laid down by the Fiscal Commission for industries claiming protection are satisfied in the case of the glass bangles industry.

(a) The industry of manufacturing glass bangles possesses natural advantages in an abundant supply of the principal raw materials, cheap power, a sufficient supply of labour and a large home market.

(b) Without the help of protection the glass bangles industry is not likely to develop as rapidly as is desirable in the interests of the country.

(c) If the industry is helped in its infancy it will eventually be able to face world competition without protection.

Glass bangles are an article of necessity to all classes of women in India and the large amount of money that is now being paid for foreign made bangles would remain in the country if the industry is developed.

68. We consider that the most suitable form of protection would be an import duty of 200 per cent. on all glass bangles imported from abroad. The price at which reshami and other cheap styles of bangles are sold is so

low that a lower rate of duty would not have the same beneficial effect. Exchange on Japan, from which country the chief competition emanates, was on the 8th December 1931 Rs. 204 per 100 yen and it is possible that it will go still lower and thus stimulate exports from that country.

(b) We suggest that protection should be given in the form of an import duty which will practically prohibit imports from abroad.

(c) We consider that glass bangles require protection but we cannot speak about other classes of glassware which we do not ourselves manufacture.

69. We do not think it likely that any other industries will be adversely affected by the imposition of a protection duty on glass bangles.

FORM I.—*Statement showing the total expenditure incurred at works on the production of glass during the past five years.*

As our factory has only been started during the current year we are unable to supply the information required in this form.

FORM II.—*Statement showing the works expenditure per ton of each class of glassware during the past five years.*

As our factory has only been started during the current year we are unable to supply the information required in this form.

(3) *Letter dated the 30th December, 1931, from Mr. M. N. Mehta, 65, Ezra Street, Calcutta.*

In continuation of the evidence given by our Proprietor, Mr. P. M. N. Mehta, before the Tariff Board in Calcutta we submit that the indigenous concerns for manufacturing glass bangles should be given adequate and timely protection against foreigners who may wish to erect factories in India in order to compete on the spot with factories owned by Indians and thus avoid payment of any protective duties which it may be desired to impose on imports of glass bangles from foreign countries.

The glass bangles industry in India is only in its infancy and means should be devised to prevent foreigners from erecting factories with the sole object of eventually crushing the indigenous industry and eventually monopolising the trade.

In this connection we would draw attention to the tactics of the Swedish Match Company who, in order to avoid the protection granted to the local match manufacturers, established factories in India and have gradually extended these factories and opened new ones in different parts of India. These factories, spread over the different provinces, enable the Swedish Match Company to supply matches on the spot to dealers up-country while indigenous factories have to pay railway freight to these up-country towns. In order to meet the conditions recommended by the Tariff Board and accepted by the Government of India, the Swedish Match Company have formed their Match Factories in India into a limited concern having a certain proportion of Indians on their Board of Directors. These Indian Directors do not really take an active part in the management but they have been selected on account of their position in public and other activities.

It is feared that similar tactics may be adopted by foreign manufacturers of glass bangles (particularly Japanese) whose trade with India may be adversely affected by any protection afforded to Indian manufacturers. These foreign manufacturers will certainly open factories in India in order to evade payment of any protective duties imposed on imports of glass bangles manufactured outside of India, and will follow the example of the Swedish Concern by forming Limited Companies registered in India and having Indians as Directors in order to give such companies the appearance of being Indian Concerns although in reality foreign concerns wanting to exploit the country.

We also understand that in order to take advantage of the protective duties on sugar, a Chinese firm is contemplating the establishment of as many as seven Sugar Factories in India. Surely, the Tariff Board will admit that the burden on the customer in this country is not being imposed in order that foreigners may exploit the advantages therefrom. We would suggest shortly that the Government of India should take necessary measures to prevent non-Indians from establishing themselves in industries like those in which particularly Indians are taking a keen interest and which they are anxious to develop as much and as quickly as possible.

As regards a protective duty of 200 per cent. on Imported Glass Bangles suggested by us we would draw the attention of the Tariff Board to the fluctuations in Japanese exchange with India which varies from time to time from Rs. 100 to Rs. 200 per 100 yen. These fluctuations are due to the clever tactics of Japanese manufacturers and bankers in handling their business. During recent months we have seen how the rupee-yen exchange has been fluctuating from Rs. 200 per 100 yen to Rs. 135 per 100 yen. The ratio has been in favour of the Japanese for a considerable time. On 8th December, 1931, the rate of exchange was Rs. 200 per 100 yen and on 30th December, 1931, the rate is Rs. 135 per 100 yen, which means that 65 points have dropped off within a space of three weeks, and in fact Japanese exchange has in normal times dropped to Rs. 100 per 100 yen. This point should be carefully considered in recommending measures of protection for the glass bangles industry of India.

Taking into consideration the fluctuations of 100 points in exchange we suggest that protection granted to the glass bangles industry should be in the following form:—

- (1) When exchange on Japan is up to Rs. 124 per 100 yen, import duty on glass bangles should be levied at 200 per cent.
- (2) In case exchange on Japan is above Rs. 124 per 100 yen, the rate of the duty may be reduced to a figure which would compensate for the higher exchange.

We have already submitted original Invoice No. 8402, dated the 31st August, 1931, for 65 cases Japanese bangles the total c.i.f. cost of which is yen 831-32 which—

	Rs. A. P.
At an exchange of Rs. 130 per 100 yen equals .	1,080 11 6
Add import duty at 50 per cent. on 33,720 dozen pairs in the 65 cases on the Tariff valuation of 1 anna per dozen pairs . . .	1,053 12 0
Add landing and clearing charges at 3 per cent.	64 0 0
Total landed cost of 33,720 dozen pairs is . . .	2,198 7 6

The landed cost *ex-Jetty* of 1 dozen pairs is 12½ pies. It will be seen from the Invoice that freight from Kobe to Calcutta is only yen 10 per ton and on 65 cases (33,720 dozen pairs) totals yen 120-75.

It may be pointed out that the first cost of Japanese reshmi bangle as shown in the invoice was 2 sen 1 rin (=2 $\frac{1}{10}$ th sen) per dozen pairs but during the month of September prices fell to 2 sen and that a discount of 1 per cent. is allowed off these prices.

We enclose a statement showing the actual cost of manufacturing glass bangles from which it will be seen that while the cost of manufacture per dozen pairs is 1 anna 4½ pies per dozen pairs the sale price has until recently been 1 anna per dozen pairs and this price has now been reduced to 10 pies per dozen in order to meet the competition created by the drop in Rupee Yen Exchange.

It may be pointed out that the imports of glass bangles during the financial year 1927-28 amounted to 2 crores of rupees but dropped during the last financial year (1930-31) to 50 to 60 lacs owing to the general economic depression and the unsettled political conditions in this country.

We trust the Tariff Board will give their favourable consideration to this representation and will recommend to the Government of India to grant adequate and timely protection to the glass bangles industry and help it to obtain a firm footing among the industries of the country.

Enclosure.

Statement of expenditure for manufacture of 37,800 lbs. of glass per week.

Cost of materials used daily—

	Rs. A. P.
Sand 3,348 lbs. at 3 pies per lb.	52 5 0
Soda 1,612 lbs. at anna 1 per lb.	100 12 0
Lime 128 lbs. at anna 1 per lb.	8 0 0
Zinc oxide 403 lbs. at annas 4 per lb.	100 12 0
Borax 344 lbs. at annas 2 per lb.	43 0 0
Cadmium 134 lbs. at Rs. 2 per lb.	268 0 0
Selenium 75 lbs. at Rs. 7 per lb.	525 0 0
Total cost per day	1,097 13 0
For 7 days at Rs. 1,097-13 per day is	7,684 11 0
Coal 2½ tons per day—17½ tons for 7 days at Rs. 10 per ton	175 0 0
Gas and electricity for 6 days at Rs. 30 per day	180 0 0
Supervision and office establishment for 7 days at Rs. 80 per day	560 0 0
Selling expenses for 7 days at Rs. 40 per day	280 0 0
Card board packing boxes, wrapping paper, labels for 10,000 boxes per day—60,000 boxes in 6 days at pies 4½ per box	1,406 4 0
Other chemicals (cobalt oxide, sulphate copper, etc.) for 6 days at Rs. 15 per day	90 0 0
Rent, taxes and miscellaneous expenses at Rs. 40 per day for 7 days	280 0 0
9 Crucibles per month at Rs. 45 each—Rs. 405 per month (these have to be renewed every month) equals per week	101 0 0
Cost of furnace—Rs. 2,000 every 3 months—per week	166 8 0
Labour for manufacturing 10,000 dozen pairs per day equals 60,000 dozen pairs per week of 6 days at pies 4½ per dozen pairs	1,406 4 0
Interest on Block Capital Rs. 200,000 and Working Capital 100,000, Total Rs. 300,000 for 1 week at 12 per cent. per annum	750 0 0
Total cost of manufacturing 5,400 lbs. per day—37,800 lbs. in 7 days	13,079 11 0
Cost per 1 lb. glass	0 5 6½
Cost of glass for daily output of 10,000 dozen pairs at 4 oz. per dozen pairs—2,500 lbs. of glass at annas 5-6½ per lb.	865 14 3
Proceeds of sale at wholesale rate of anna 1 per dozen pairs for 10,000 pairs	625 0 0
Nett loss on sale of 10,000 dozen pairs	240 14 3

(N.B.—Owing to the drop in rupee-yen exchange the selling price has now been reduced to pies 10 per dozen pairs.)

Cost of manufacturing glass bangles, say 4 oz. of glass per 1 dozen pairs of bangles at annas 5-6½ per lb. of glass—annas 1-4¼ against selling price of anna 1 since reduced to pies 10 per dozen pairs.

(4) *Letter dated the 8th March, 1932.*

With reference to our letter, dated the 30th December, 1931, we beg to submit that whilst the evidence given by our proprietor Mr. P. M. N. Mehta, before the Tariff Board in Calcutta, he had drawn the particular attention to the fact that on account of uncertainty in the Japanese exchange, the Board should take into their kind consideration the fluctuations in the Japanese exchanges, from time to time, as it mars the glass bangles industry in India, when the exchange has gone down to Rs. 115 for yen 100 so it is quite impossible to compete with the Japanese glass bangles at the present rate of exchange. You are requested to place forth this letter before the Tariff Board members, for their kind consideration, to put up a higher duty say 200 per cent. when the exchange on Japan is up to Rs. 124 per 100 yen, unless this method of scale is observed by the Tariff Board while submitting their report to the Government of India, we are sure that the indigenous concerns for manufacturing glass bangles should be given adequate and timely protection.

We would draw the attention of the Tariff Board members to the fluctuations in Japanese exchange with India which varies from time to time from Rs. 100 to Rs. 200 per 100 yen. These fluctuations are due to the clever tactics of Japanese manufacturers and bankers in handling the business. During recent months we have seen how the rupees have depreciated and as well as appreciated with the Japanese exchange. Sir, not far back during the first week of December last the exchange was somewhere to Rs. 200 for 100 yen, and at the time whilst our Proprietor's evidence was given orally to the Tariff Board it was somewhere to Rs. 145 for 100 yen, and now it has dropped down to Rs. 115 for 100 yen, still there is lower tone for the Japanese exchange, it might even go under the par value, under these circumstances, we beg to say that this point should be carefully considered in recommending measures of protection for the glass bangles industry.

We trust that our above request will not be taken amiss in any way that we have been worrying the Tariff Board by putting up the 200 per cent. protective duty on glass bangles, we have placed the real facts with figures, and we trust the Tariff Board will give their favourable consideration to this representation, and will recommend to the Government of India, to grant adequate and timely protection to the glass bangles industry, and help it to obtain a firm footing among the industries of the country.

MESSRS. M. N. MEHTA GLASS FACTORY, CALCUTTA.

B.—ORAL.

**Evidence of Mr. P. M. N. MEHTA, recorded at Calcutta, on Saturday,
the 19th December, 1931**

President.—Mr. Mehta, I gather from your statements that you are applying for a protective duty of 200 per cent. on glass bangles?

Mr. Mehta.—Yes. The reason being that although on the face of it looks prohibitive, we have to compete with formidable rivals like Japan. On the 8th December the rate of exchange was Rs. 200 for 100 yen whereas at the present moment it is 150 and by the month of March if Japan goes off the Gold Standard it may become 200 at par, so that 100 will go out as far as the exchange is concerned, and Japan is a country which can compete against any other country in this business. They have captured the beads business which used to be in the hands of Czechoslovakia and Bohemia.

President.—Your main justification for a duty at this rate of 200 per cent. is the exchange position with regard to Japan?

Mr. Mehta.—Yes.

President.—In your original representation to us you suggested a duty of 100 per cent.?

Mr. Mehta.—Yes.

President.—So that this additional 100 per cent. that you are suggesting is on account of the recent fluctuation in exchange, but apart from exchange you consider that the facts of the glass bangle industry in your experience would justify the imposition of a duty of 100 per cent.?

Mr. Mehta.—Yes.

President.—May I take it that you have satisfied yourself that on the facts of the industry a duty of 100 per cent. is what is wanted? Supposing the exchange of Japan was normal—supposing it was at par—then your position is that on the facts of the industry a duty of 100 per cent. would be required?

Mr. Mehta.—Yes.

President.—You have satisfied yourself about that?

Mr. Mehta.—Yes.

President.—I should like you to tell me what precisely are these facts on which a duty of 100 per cent. is justified?

Mr. Mehta.—The facts are that according to the Indian Fiscal Commission's report.....

President.—The question is one of facts not of opinions. You say on the facts of the industry you have satisfied yourself that a 100 per cent. duty is required. I am asking you from the replies that you have sent in to tell me precisely what the facts are.

Mr. Rahimtoola.—The Board would like to know how you have arrived at a figure of 100 per cent.

Mr. Mehta.—We have to import skilled labour and it is more costly to manufacture over here than in other countries.

President.—You understand, don't you, that the measure of protection which an industry can claim is the difference between its cost and the price of the imported article against which it competes. It is possible for us to get the facts which regard to the import price from importers and the Customs and from various other sources. That is only one side of the case: the other side of the case is your costs, and unless you have got both it would be impossible to justify any particular rate of duty. Since you have

told us that you have satisfied yourself that the facts of the industry justify a duty of 100 per cent., I am asking you to give us the facts.

Mr. Mehta.—It costs us to manufacture *reshmi* bangles one anna a dozen pairs.

President.—We cannot take a simple statement of that kind at its face value. What is your cost on which you base your proposal for a 100 per cent. duty?

Mr. Mehta.—Cost of material and labour and so on.

President.—What does your material cost? Give us the cost for the 11 months that you have worked. Supposing I suggested in answer to your proposal for a 100 per cent. duty that at present you are making 100 per cent. profit, how would you meet it?

Mr. Rahimtoola.—The point the Board would like to know is how exactly do you arrive at this figure of one anna per dozen pairs?

Mr. Mehta.—I will give you the details. It costs us at As. 1-4½ pies for one dozen pairs of *reshmi* bangles including labour cost and materials.

Mr. Rahimtoola.—I want you to give the details of labour, material and so on.

President.—You have worked for 11 months. Your difficulty in producing your cost statement in this form I take it is that your accounts have not been audited yet, but is it altogether impossible for you to take out for this purpose the figures with regard to your expenditure on each particular material, on power and fuel, on supervision and establishment, on repairs and on miscellaneous items?

Mr. Mehta.—As far as the glass industry is concerned I believe it is impossible.

President.—You started in January: suppose I suggested that you take the total quantity of sand that you purchased since you started operations in January and you know how much sand there is in stock, don't you? That will give you the total amount of sand you used in the manufacture of bangles so far? Similarly would it not be possible for you to get your expenditure on soda ash, your expenditure on lime, your expenditure on coal? Probably these figures would not be accepted by your auditors but these figures would be good enough for basing a fairly accurate estimate of the costs.

Mr. Mehta.—I am prepared to give you the costs but it will take some time. At the present moment I manufacture so many dozen pairs. We have a statement every week: we say we spend so much raw material for the manufacture of bangles and it brings the cost to one anna and 4½ pies per dozen pairs.

President.—For what period have you got your figures in that form?

Mr. Mehta.—Since October last I have got statistics of how much I manufacture and what quantity of material is being consumed every week.

President.—Have you any statistics of that kind with regard to the production for the previous months?

Mr. Mehta.—No.

President.—Surely you know your materials for those months?

Mr. Mehta.—We started with a great handicap.

President.—Supposing I asked you to give me your total expenditure on each material during those months that you have been working since January last, would you be able to give me that?

Mr. Mehta.—It would be rather difficult for me because we have placed in one account whatever we bought and it would be difficult to take out the different materials.

President.—But you would be able to give them separately for a period of two months?

Mr. Mehta.—Yes, for October and November.

President.—When would you be able to prepare that statement for us?

Mr. Mehta.—Within a fortnight.

President.—Would you be able to let us have it by the 4th January?

Mr. Mehta.—Yes I will.

President.—It is not possible for us to make any use of your replies so long as exact figures of costs are not available.

Mr. Mehta.—I will send you the figures by 4th January.

President.—Look at Form I. Is there any item here regarding which it would be impossible for you to give us figures from the statements that you have prepared? What I should like you to do is to take those months for which you have prepared statistics in this form, give us the total output of bangles during those months and then give us the expenditure during those months divided under these heads.

Mr. Mehta.—I will do so.

President.—I think it would considerably strengthen your case.

Mr. Mehta.—I will. There is one point I would like to mention if I am permitted to speak. The Tariff Board was good enough to recommend to the Government of India, so far as the match industry was concerned to see if the Swedish people went against the interests of the Indian manufacturers. I am myself the owner of a match factory. When the Tariff Board took up the enquiry into the Match industry they had only two or three factories in the whole of India whereas there are about 16 factories now. Under a camouflage the Western India Match Company have what they call Indian shareholders and Indian rupee capital, but I can say with force that it is more or less all Swedish capital. Their activity is all over the world and it is not possible for individual factories in India to compete with them. Suppose we get protection from you in the case of the Glass industry there must be protection to such an extent that foreigners may not come out to India and enter into keen competition with Indian manufacturers.

President.—What precisely is the suggestion that you are making?

Mr. Mehta.—The suggestion is this: suppose for argument's sake you put up a duty of 100 per cent.: in that case foreigners might come up and with their capital they would have more output which would mean cheaper cost of production and the result would be that we would be stranded.

President.—Is it your suggestion that if the Tariff Board makes a recommendation for a high rate of duty steps should be taken to prevent developments occurring here of the kind which have occurred in the match industry?

Mr. Mehta.—Yes.

President.—That is a suggestion which the Tariff Board has necessarily got to consider. If you have any definite proposals to make with regard to that point you could communicate these proposals to us, and we should certainly be ready to consider any suggestions that you care to make.

Mr. Mehta.—Yes.

President.—The point is if a protective duty is levied on imported bangles, steps should be taken to prevent developments of the kind which have occurred in the Match industry. If any definite proposals in that connection occurred to you, you would communicate them to the Tariff Board.

Mr. Mehta.—With pleasure.

President.—At present you have no particular proposal. You are simply making a general suggestion.

Mr. Mehta.—Yes.

President.—We will note that general suggestion.

Mr. Mehta.—I understand that some of the Indian manufacturers have said that there is no necessity to have a protective duty on glassware. I have to contradict that.

President.—You can contradict that only in one way, by giving us your costs.

Mr. Mehta.—There are no other manufacturers who are manufacturing glass bangles in Bengal.

President.—Whether there is a case for a protective duty or not entirely depends on the difference between the Indian manufacturers' costs and the import price.

Mr. Mehta.—Yes.

President.—So long as you have not given us your costs, it is impossible to proceed with the matter any further. Unless you do that, your case falls to the ground.

Mr. Mehta.—I will send you the costs on the 4th January, 1932.

President.—Taking your replies such as they are, in answer to question 4 you tell us that the full capacity of your works at present is 10,000 dozen pairs per day. How much is that in weight?

Mr. Mehta.—It varies according to the size of the bangles.

President.—Supposing you take a normal assortment of the kind of bangles that you make in your factory?

Mr. Mehta.—4 ounce to 1 dozen pairs of bangles.

President.—Can you tell me approximately if you take a cwt. of finished glass of bangles, how many pairs that would represent?

Mr. Mehta.—If we take one cwt. of glass, we have the wastage to be taken into account.

President.—I am speaking of one cwt. of bangles.

Mr. Mehta.—It is a matter of calculation.

President.—Would you calculate that for me? How much is a chatak?

Mr. Mehta.—18 chataks makes one seer.

President.—8 chataks is equal to one lb.

Mr. Mehta.—There are different kinds of bangles.

Mr. Rahimtoola.—You said that that is the general average.

Mr. Mehta.—Yes.

President.—We can take this figure of 14 chataks to dozen pairs?

Mr. Mehta.—Yes, but there are various kinds of bangles. That is what we manufacture.

President.—When you are giving us these costs, you are going to give us your total output for this particular period?

Mr. Mehta.—Yes.

President.—Are you going to give us that in weight or in numbers? The total quantity of bangles that you have made during this period for which you have given figures, is that going to be given in pairs?

Mr. Mehta.—Yes in dozen pairs.

President.—We will be able to know precisely the cost of bangles per gross.

Mr. Mehta.—Yes.

President.—The point which makes it important for us to have also the weight figure is that your railway freight is calculated on weight.

Mr. Mehta.—Yes.

President.—It is not on the numbers of bangles?

Mr. Mehta.—No.

President.—In order to know your relative position here as compared with upcountry centres, it would be necessary for us to know how many pieces of bangles represented say some standard weight? Do you see my point?

Mr. Mehta.—I do.

President.—You have had a good deal of experience in imported bangles.

Mr. Mehta.—Yes.

President.—How long have you been connected with the trade?

Mr. Mehta.—For the last 52 years my firm is interested. We are the oldest firm dealing in glass bangles in the whole of India.

President.—Do you import both from Japan and Czechoslovakia?

Mr. Mehta.—Yes. At the present moment I have left off importation more or less.

President.—Completely?

Mr. Mehta.—More or less completely. In pre-war days we used to import nearly Rs. 75 lakhs a year. In pre-war days the total importation used to be Rs. 3 crores.

President.—How long ago did you give up importing bangles altogether?

Mr. Mehta.—For the last two years, because I was more or less interested in the Match industry. Having burnt my fingers I have to come back to my old trade of manufacturing bangles.

President.—You will not be able to give us the current prices of various classes of bangles?

Mr. Mehta.—There are various kinds of bangles ranging from one anna per dozen pairs.

President.—What is the principal class of bangles that you make? Does Reshmi constitute the bulk of your output?

Mr. Mehta.—To some extent. There are other kinds.

President.—If you take *reshmi* bangles, they are more or less standardised.

Mr. Mehta.—These bangles (shown) are used by poor class of people, because the cost is only one anna per dozen pairs.

President.—Would you be able to get us the present wholesale prices in Calcutta for the principal classes of bangles?

Mr. Mehta.—Yes, I will be able to tell you now.

President.—Would you give us the prices for half a dozen of the leading varieties?

Mr. Mehta.—*Reshmi* bangles, Indian Made—1 anna per dozen pairs, *Reshmi* bangles, Foreign made—1½ annas per dozen pairs.

President.—Is that whole or retail?

Mr. Mehta.—We never sell retail.

President.—This is the wholesale price?

Mr. Mehta.—Yes. That includes the wooden case, complete packing with cardboard boxes.

President.—It is taking really the price of the whole case and dividing it by the number of pairs?

Mr. Mehta.—Yes.

President.—One anna per dozen pairs, Indian made?

Mr. Mehta.—Yes.

Mr. Rahimtoola.—Do I understand that this is your wholesale selling price?

Mr. Mehta.—Yes.

President.—What is the corresponding price for imported bangles?

Mr. Mehta.—1½ annas.

President.—Is that for Japanese?

Mr. Mehta.—Yes and Czechoslovakia are not manufacturing *Reshmi*, because they do not pay them.

President.—Is the quality absolutely comparable?

Mr. Mehta.—Our quality is just the same as Japanese.

President.—And this difference of half anna is entirely prejudice?

Mr. Mehta.—It is absolutely prejudice and nothing else.

President.—It is the same quality, the same size, the same design?

Mr. Mehta.—We haven't got the words "made in Japan" and that is the only difference.

President.—Give me some other varieties. When we were at Ferozabad we were told that all bangles could more or less be divided into three classes, Reshmi, Twisted and fancy bangles.

Mr. Mehta.—Each province has got its own divisions.

President.—Could you give me the price of twisted bangles?

Mr. Mehta.—A dozen pairs we sell wholesale at 2 annas—I am speaking of Reshmi and lustrous ones—twisted ones with that kind of lustre (sample shown).

President.—That is including packing?

Mr. Mehta.—All prices of bangles include the cost of packing.

President.—What is the price of the comparable imported bangles?

Mr. Mehta.—As 2-9 as the present moment. Just a month ago it was As. 3.

President.—Are there any varieties which could not be grouped in these two and which you make?

Mr. Mehta.—These are hollow tube bangles (sample shown).

President.—At what price do you sell them?

Mr. Mehta.—We sell them at As. 2.

President.—And imported ones?

Mr. Mehta.—As 3.

President.—Do you sell any fancy bangles?

Mr. Mehta.—Yes.

President.—Have you got any specimens here?

Mr. Mehta.—Up till now we are manufacturing these classes of bangles (sample shown). The Ferozabad gilded ones are sold at 4 to 5 annas per dozen pairs.

President.—It is really difficult to compare the prices of Indian made and imported fancy bangles, because they represent very many different classes.

Mr. Mehta.—Yes and as a rule the imported ones always fetch a better price though the Indian made bangles are equal in quality.

President.—As regards costs, what we propose to do is this: we take your whole output of bangles for the period for which you have given us figures and then we divide your total expenditure by that and find that a dozen pairs of bangles in your factory cost so much. Supposing we take that and take this price of one anna per dozen pairs and then take the difference between this price and your cost as the measure of protection?

Mr. Mehta.—More or less the cost comes to one anna and $4\frac{1}{2}$ pies per dozen pairs so far as *reshmi* bangles are concerned. If you want figures, I will produce them on the 4th of January. It costs me one anna and $4\frac{1}{2}$ pies to make these bangles.

President.—Supposing on your figures it is established that it costs one anna to make a dozen pairs and then we find that you are able to realise in the market less than one anna in competition with imported bangles of the same class, then the difference between the two, if there is any, is the measure of protection.

Mr. Mehta.—I quite agree. Another thing—may I be permitted to speak—and that is as regards Japanese bangles we should settle the exchange question first. If the exchange goes to Rs. 100 or Rs. 125, those very bangles would cost 2 sen per dozen pairs with packing and we cannot manufacture at 2 sen. Some bangles sell at 1 sen.

President.—When you import from Japan, are the invoices invariably made out in yen?

Mr. Mehta.—Yes. I have a firm in Japan and these are our actual costs (Invoice statement handed in). If we have the exchange at 100, we will have to shut down the factory.

President.—These are f.o.b. prices?

Mr. Mehta.—Yes. Since then the prices have gone down.

President.—When you say the prices have gone down, the yen prices have not gone down? It is the rupee prices that have gone down?

Mr. Mehta.—At the present moment the exchange is Rs. 145-6.

President.—What I am suggesting to you is this. If we take the Japanese price in Japanese currency and then convert it into rupees at whatever happens to be the ruling rate of exchange, then you will get the current price.

Mr. Mehta.—Yes.

President.—There has been no variation in the yen price?

Mr. Mehta.—No.

President.—That is quite correct, that is to say this price stands?

Mr. Mehta.—Yes.

President.—All that we have got to do is to take the f.o.b. price and freight and then convert it into rupees at whatever happens to be the prevailing rate of exchange. That would be correct?

Mr. Mehta.—Yes.

President.—We can take Reshmi bangles as typical ones?

Mr. Mehta.—Yes. These are more or less imported in large quantities from Japan.

President.—If we take the price of Reshmi bangles and compare that with your cost we get for practical purposes a correct standard of the measure of protection?

Mr. Mehta.—Yes.

President.—Now with reference to question 12, do you mind giving us your normal batch composition for the manufacture of bangles?

Mr. Mehta.—I shall give you with pleasure. As far as the manufacture of bangles is concerned, I should like to point out that bangles are required in different colours. If you want only for white bangles, I am prepared to give it.

President.—That will do.

Mr. Hodkin.—Give us only for white bangles.

Mr. Mehta.—It is as follows:—

Sand 2 maunds 10 seers.

Soda 1 maund.

Arsenic powder $\frac{1}{2}$ seer.

Granulated borax $1\frac{1}{2}$ seers.

Manganese 1 chittak.

Mr. Hodkin.—What about lime?

Mr. Mehta.—We don't use lime in the manufacture of white bangles. we have a different method also. In that we use sand, heavy soda, saltpetre and borax.

Mr. Hodkin.—Do you actually make glass from this mixture?

Mr. Mehta.—Bangles are made by the Ferozabad people.

Mr. Hodkin.—Without any lime?

Mr. Mehta.—I am not sure about it. In the composition which they got for me from Japan, I find only the following:—Sand, Heavy soda, Saltpetre and Borax.

Mr. Hodkin.—The glass made out of this composition would decompose in water.

President.—Would you give us the composition in which lime occurs?

Mr. Mehta.—I have got it in Japanese weights—

Sand 40 kan (8½ lbs.=1 kan).

Heavy soda 17 kan.

Lime 3 kan.

Mr. Hodkin.—Do you know what kind of lime it is? Is it burnt lime or slaked lime or limestone?

Mr. Mehta.—The same kind of lime that is used for whitewashing. In that composition we also use—Saltpetre 3 lbs. and Borax 1 lb.

President.—Are they all round figures or exact figures?

Mr. Mehta.—Exact figures.

Mr. Hodkin.—That is the batch composition?

Mr. Mehta.—Yes.

President.—Out of that you get sand corresponding to the weight of the mixture less 12 per cent. The loss in melting is 12 per cent.?

Mr. Mehta.—Yes.

President.—So that if you take the weight of the materials and knock out 12 per cent. you get melted glass?

Mr. Mehta.—Yes.

President.—From that you deduct 15 per cent. for breakages to get at the finished glass?

Mr. Mehta.—Yes. •

President.—In reply to question 62 you say that the breakages amount to about 15 per cent.

Mr. Mehta.—Yes.

President.—If your mixture of materials weighed 100, the melting loss would be 12. That would give you melted glass 88.

Mr. Mehta.—Yes.

President.—Then, out of that 88 you lose 15 per cent. on account of breakages. That is about 13.2. That means the finished glass will be about 75.

Mr. Mehta.—Yes.

President.—That is to say, if your materials weighed 100, your finished glass would weigh 75.

Mr. Mehta.—Yes.

President.—That happens in your factory?

Mr. Mehta.—Yes.

President.—These are fairly accurate figures?

Mr. Mehta.—Absolutely accurate figures.

President.—How exactly do you test them?

Mr. Mehta.—When we got your questionnaire, we conducted a test in our factory and arrived at the figures before we sent in our replies. When we received your questionnaire, we were obliged to do that.

President.—As regards your reply to question 14, could you give us the prices of Sand, Soda and Lime?

Mr. Mehta.—Yes. Sand works out to 8½ annas a maund.

President.—Delivered at the works?

Mr. Mehta.—Delivered at the Ultadanga Station.

President.—What does it cost you to cart from there to your place?

Mr. Mehta.—We have our own motor lorries.

President.—All your expenses (petrol, wear and tear, etc.) on the lorry go to the lorry account which appears in your costs?

Mr. Mehta.—Yes.

President.—What about your soda? What does it cost you?

Mr. Mehta.—We get it at the rate of Rs. 6-12 per cwt. (since prices are increased).

President.—That is delivered at your works?

Mr. Mehta.—No, delivered at the Imperial Chemicals' godown.

President.—How do you arrange for its delivery at your works?

Mr. Mehta.—We take it in our own motor lorry.

President.—What about lime?

Mr. Mehta.—I shall send you the figure for lime later on.

President.—You get all your sand from Allahabad?

Mr. Mehta.—Yes.

President.—Have you got the analysis of your sand?

Mr. Mehta.—No. I am getting it from the Naini Glass Works people. We have tested and found it satisfactory. It is considered to be one of the best kinds of sand available.

President.—You do not know the iron composition?

Mr. Mehta.—No.

President.—That is to say, you depend on the Allahabad people for the quality of the sand.

Mr. Mehta.—They have their own deposit and out of friendship they are supplying it to us.

President.—You are finding it satisfactory?

Mr. Mehta.—We are satisfied with the quality of the sand we are getting.

President.—I take it that you have not considered so far the question of installing a gas furnace?

Mr. Mehta.—The initial outlay would be very heavy. We do not receive any support either from Government or from the Bankers. That is the position as far as the Indian manufacturers are concerned. I am prepared to get the gas furnace if I can arrange for finance.

President.—What would it cost you?

Mr. Hodkin.—You can get a good furnace at Rs. 40,000.

Mr. Mehta.—The Bankers would not advance even Rs. 10,000 either on the Match factory or on the Glass factory.

President.—With reference to your reply to question 36, would you please explain to me how you got this figure of one ton of coal for one ton of glass? Is that the result of experiments you have made in your factory?

Mr. Mehta.—As regards these glass bangles we don't have to put glass back into the furnaces. We have a different method. As soon as the glass comes out from the crucibles immediately it is used for the manufacture of bangles. In other cases it will have to be put again into the furnace for 24 or 36 hours. In that case, it will cost more. This figure of one ton is only for the manufacture of bangles.

President.—This is for melting the glass only?

Mr. Mehta.—Yes. To make paper weights, and things like that, four tons would be required.

President.—How did you find that out? You filled all the pots with these materials and then you applied fuel?

Mr. Mehta.—Yes.

President.—And then you weighed the fuel applied before the glass melted?

Mr. Mehta.—Yes.

President.—And then you found that the total quantity of glass that you obtained from these pots divided by the amount of fuel consumed came to one ton?

Mr. Mehta.—Yes.

Mr. Hodkin.—How many tons of coal do you use per day?

Mr. Mehta.—That depends on how we fill up the pots. Sometimes we use 3 tons and sometimes 4 tons.

President.—We can take one ton of coal as your consumption of fuel for one ton of melted glass?

Mr. Mehta.—Yes.

President.—That does not include the finishing operations?

Mr. Mehta.—No, it does not.

President.—Does it include the initial heating of furnaces? When you start your furnace you have to do a sort of preliminary heating?

Mr. Mehta.—It does not include that.

President.—You will be able to give us of course figures from the monthly accounts that you have showing how much coal you have used in the shape of fuel.

Mr. Mehta.—Yes.

President.—If we get your fuel consumption during those months, then by comparing it with the output of bangles that you obtained we should be able to judge precisely what quantity of fuel was required for the whole process? Is not that so?

Mr. Mehta.—Yes.

President.—You say that it is difficult for you to describe the process of manufacturing bangles or to give a brief description of the plant and machinery. Is it your point that you would not like to have the details of these things published? You don't mean that, do you?

Mr. Mehta.—No.

President.—Can you tell me which exactly are the processes subsequent to melting where you employ machinery in the manufacture of bangles? Once you get your melted glass, what do you do?

Mr. Mehta.—It goes on the machine; it revolves on the spiral.

President.—How many of them have you?

Mr. Mehta.—At the present moment I have 5.

President.—All of them are worked by power or by hand?

Mr. Mehta.—One is worked by power and the rest by hand.

President.—After that stage, it is all done by hand—I mean the cutting, the joining and the annealing?

Mr. Mehta.—That cannot be done by machine. This kind of bangle (sample shown) has to be made by hand.

President.—That is with regard to plain bangles. Now with regard to twisted bangles, it is possible to do twisting by machine?

Mr. Mehta.—Yes, we have a machine for that.

President.—Is that worked by hand?

Mr. Mehta.—Yes.

President.—So, practically these are the two processes that you do by machine—the twisting and the spiral process?

Mr. Mehta.—Yes.

President.—Now as far as bangle factories as a whole are concerned, they all more or less adopt this spiral process with, on the whole, small exceptions?

Mr. Mehta.—Yes. They have the same system in Japan too.

President.—It is invariably worked in Japan by power or by hand?

Mr. Mehta.—Both by hand and by power.

President.—The usual thing is still by hand?

Mr. Mehta.—Yes.

President.—So that, as far as I can make out, the difference between your equipment and that of other factories say at Firozabad is that you work your spirals, some of them at any rate, by power, whereas it is almost invariably worked by hand elsewhere.

Mr. Mehta.—In India, you mean?

President.—I am speaking of India.

Mr. Mehta.—Yes, it is worked by hand.

President.—In what respects is your equipment better than others?

Mr. Mehta.—Apart from the lay-out, the process is cleaner and healthier than that in Firozabad.

President.—The premises are kept cleaner. There is more floor space.

Mr. Mehta.—Their process is quite different from ours. When they melt the glass and put it into another furnace, smoke comes out. You know the process in use at Firozabad and you know also our process.

President.—It is not the process, but the conditions under which the process is carried, that are important.

Mr. Mehta.—We use gas.

President.—You use coal gas and not producer gas?

Mr. Mehta.—Yes, instead of kerosene oil.

President.—That is where the joining is done?

Mr. Mehta.—Yes. And also in the spirals they use coal.

President.—How many furnaces have you got?

Mr. Roy.—At the present moment one. We are making up two more.

President.—In answer to Question 56 you tell us that "the present cost of erecting a glass bangles factory similar to ours would be approximately the same as our cost divided under the following heads:—

Building and land	50,000
Plant and machinery	50,000
	1,00,000 "

That would mean how many furnaces?

Mr. Mehta.—That is one furnace.

President.—Making about 10,000 dozen pairs a day?

Mr. Mehta.—Yes.

Mr. Hodkin.—What would be the capacity of your pots in that case?

Mr. Mehta.—600 lbs. each I believe. We have nine pots.

Mr. Hodkin.—10,000 dozen pairs amounts to 156 cwts.; that is approximately 8 tons, so that each pot gives you something in the region of 17 cwts. and not 600 lbs.

Mr. Mehta.—But the glass is being accumulated; we store this glass in the factory.

Mr. Hodkin.—That is not the point. You are manufacturing you say 10,000 dozen pairs a day, and according to your statement the actual weight of the bangles is 7 tons 16 cwts. per day.

Mr. Mehta.—We had in stock the raw material.

Mr. Hodkin.—If you manufacture 7 tons 16 cwts. of glass per day and you have got to get that out of 9 pots, your average per pot of glass that you make must be something in the region of 17 cwts. per pot and you say your pot capacity is only 5 cwts.

President.—Assuming that the weight figure is correct. I am inclined to think that this 10,000 dozen pairs is a very approximate kind of figure.

Mr. Hodkin.—I don't believe that one dozen pairs of bangles weigh 2 lbs.; I should say one dozen pairs of bangles probably weigh somewhere in the region of half a pound and that will bring down the weight of glass to 2 tons. I think Mr. Mehta has made a mistake in taking 14 *chhatacks* for a dozen pairs of bangles: I think it should be nearer 4 *chhatacks*.

Mr. Mehta.—I don't know whether it is for one gross or one dozen. (Since verified. The correct weight is 3 lbs. for one gross.)

President.—Rs. 1,00,000 is the estimate of your replacement cost of building, land, plant and machinery of this capacity?

Mr. Mehta.—Yes.

President.—You suggest a depreciation rate of 30 per cent. in answer to Question 64.

Mr. Mehta.—Yes; the Income-tax people do not allow more than 15 per cent.

President.—What do you estimate as depreciation on the furnace?

Mr. Mehta.—A furnace lasts only two to three months.

President.—What has been your experience so far with regard to imported crucibles?

Mr. Mehta.—Their life is approximately a month. Some go bad in two days' time.

President.—How much does it cost you to repair the furnace?

Mr. Mehta.—Nearly 2,000 rupees.

President.—Once in three months?

Mr. Mehta.—Yes.

President.—During the year you would spend about Rs. 8,000?

Mr. Mehta.—Yes.

President.—That goes into your current expenditure?

Mr. Mehta.—Yes.

President.—It is unnecessary then to allow any depreciation on the furnace because practically you are erecting a new furnace.

Mr. Mehta.—Yes.

President.—So that if you are allowing repairs and maintenance expenditure to the extent of Rs. 8,000 every year on your furnace it is unnecessary to consider any depreciation on the furnace. That would be right, would it not?

Mr. Mehta.—Yes.

President.—If that is left out then there is no depreciation on land, there is depreciation on building which is 2½ per cent. On the rest of your machinery what kind of depreciation do you want? 30 per cent?

Mr. Mehta.—Yes.

President.—These spirals are expected to last about seven years?

Mr. Mehta.—No: not more than six months because they become smaller on account of continuous heat.

President.—You replace these at the end of six months?

Mr. Mehta.—Yes, otherwise the size would not be uniform.

President.—What does the spiral cost?

Mr. Mehta.—About 15 yen each.

President.—So that the cost of the spiral goes into your current expenditure?

Mr. Boag.—Do you replace the whole thing or only the roller?

Mr. Mehta.—In six months' time we have to replace the whole machine. Certain chemicals that we are using spoil the whole machine absolutely.

President.—All that expenditure goes into the current account?

Mr. Mehta.—Yes.

President.—So that it looks to me that there is very little room for depreciation because your repairs are really renewing the whole plant.

Mr. Mehta.—More or less.

President.—How exactly then do you work out this 30 per cent.?

Mr. Mehta.—The Income-tax authorities are allowing only 15 per cent. on machinery.

President.—The usual allowance they make for depreciation on machinery is $7\frac{1}{2}$ per cent.: 15 per cent. is a particularly high rate. If they are allowing 15 per cent. for your machinery they are allowing twice the rate for ordinary industrial machinery. In this statement of accounts that you are going to send us you will show the full amount of repairs and maintenance that you have incurred during that period.

Mr. Mehta.—Yes I will.

President.—That will give us an idea.

Mr. Rahimtoola.—I want to ask you about the question of foreign capital. You have made a very great point about it. Have you seen the terms and conditions laid down by the Indian Fiscal Commission under which foreign capital can be brought into India?

Mr. Mehta.—As far as I remember it was that Indian capitalists should own about 75 per cent. of the capital.

Mr. Rahimtoola.—I will tell you what the terms are and then you will be able to tell us what you think about it. The terms are that Indians should have a chance of subscribing to the capital, there should be a fair number of Indian Directors, the Company should be registered in India with Rupee capital and the Company should give a fair chance to Indian apprentices to learn the work. Provided these conditions are fulfilled by a Company which is going to work in India under the protective scheme there would be no objection as far as the Legislature is concerned to bringing foreign capital into India. I therefore want to know what exactly is your objection.

Mr. Mehta.—The result would be the same as has occurred in the case of the match industry. They would have a few Indian Directors as the Swedish Match Company has done: these men may not be interested in the industry themselves but men of position, and under cover of that they would drive the Indians out of the business.

Mr. Rahimtoola.—You must not forget that this sort of influential Directors are not confined to any one industry. As far as I am given to understand the Swedish Match Company have fulfilled the terms of the Fiscal Commission. They have got the Company registered in India with rupee capital, and they have got Indian Directors.

Mr. Mehta.—If you and I start a factory in another country then you will know what hardships we would be put to. First of all we want the labourers to work for us; we want Government to help us against what foreign capitalists like the Swedish Match Company are doing in India at our expense. I can assure you that even if an Englishman were to try and establish a factory in Sweden he will have to burn his fingers whereas we, being in India, born and bred here, having invested money here, are being gradually squeezed out of existence by these foreigners under the camouflage of fulfilling the conditions laid down by the Fiscal Commission.

Mr. Rahimtoola.—It does not prevent an Indian to start a Company if he wishes to under the protective scheme. You are asking for something which amounts to asking for a change in the present policy of the Government of India and unless there are practical suggestions which you wish to make in this connection it would be difficult for the Board to change it.

Mr. Mehta.—As a matter of fact industries should be in the hands of Indians. Suppose foreigners come into India and out of Indian labour they make their money, it goes out of India without doing any benefit to India.

Mr. Rahimtoola.—You told us just now that you were importing bangles to the tune of Rs. 75 lakhs in pre-war days when the total imports were Rs. 3 crores.

Mr. Mehta.—Yes.

Mr. Rahimtoola.—You say your wholesale selling price for one dozen pairs is one anna. Does that include your profit and overhead charges?

Mr. Mehta.—It hardly gives us any profit. It covers only the factory expenses.

Mr. Rahimtoola.—Therefore one anna does not cover even the office expenses. Then you can't say that that is your cost price?

Mr. Mehta.—It covers factory expenses but no office expenses.

Mr. Rahimtoola.—When you say one anna is your cost price as well as your selling price, cost price should include all the expenditure which you incur both in the factory and in your office. Does it mean therefore that apart from the profit, it covers all the expenses that you incur in connection with your factory?

Mr. Mehta.—It does not cover the expenses for the office.

Mr. Rahimtoola.—Therefore one anna is not the cost price and therefore you are selling your bangles at below your cost price?

Mr. Mehta.—Yes.

Mr. Rahimtoola.—In answer to Question 21 you say that the Japanese manufacturers use the same material as yourselves for the manufacture of glass bangles. May I know what experience you have regarding Japanese bangles?

Mr. Mehta.—I have an expert from Japan and he uses the same material that he used in his own country.

Mr. Rahimtoola.—As the Japanese experts regularly employed by you?

Mr. Mehta.—Yes.

Mr. Rahimtoola.—What salary do they get?

Mr. Mehta.—Rs. 300 plus boarding and lodging and even during their illness we have to look after them.

Mr. Rahimtoola.—You mean you give medical relief?

Mr. Mehta.—Yes.

Mr. Rahimtoola.—You say 2 imported labourers are now appointed. Are they both Japanese?

Mr. Mehta.—Yes.

Mr. Rahimtoola.—In answer to Question 27 you say: "In the manufacture of glass bangles skilled labour cannot be replaced by automatic or semi-automatic machines". May I know what exactly you mean by that?

Mr. Mehta.—For joining these bangles we cannot have any automatic machines.

Mr. Rahimtoola.—Is that what you mean?

Mr. Mehta.—Yes.

Mr. Rahimtoola.—The rest can be replaced?

Mr. Mehta.—Yes and for packing

Mr. Rahimtoola.—Packing can never be expected to be done by machine

Mr. Mehta.—In provision stores packing is done by machine and in the case of matches packing is done by machine.

Mr. Rahimtoola.—Nowhere in the world glass bangles are packed automatically. Now we are talking of glass bangles. You can't compare glass bangles with other industries which are working on a different footing. In answer to Question 30 you have not stated the wages you are paying to the labourers. You only say 150 men are employed by you. What wages do you pay?

Mr. Mehta.—They are all piece work,

Mr. Rahimtoola.—Do you pay daily wages?

Mr. Mehta.—Firemen are getting monthly wages and those men who take out the glass from the pots get daily wages, otherwise everything is done on piece work.

Mr. Rahimtoola.—In answer to Question 29 you say: "It affects the efficiency of Indian workmen". What exactly do you mean by that? Do you mean that they can't work?

Mr. Mehta.—During the summer season in Calcutta, the heat is too much for the labourers and besides they have to work near the furnace. Therefore they are not able to work as efficiently as they are doing at the present moment.

Mr. Rahimtoola.—They are not able to put in the same number of hours as they are doing now?

Mr. Mehta.—Yes and also they are not able to work with the same zeal as they are doing now.

Mr. Rahimtoola.—How many months does it last?

Mr. Mehta.—4 to 5 months especially in Calcutta.

Mr. Rahimtoola.—In answer to Question 42 you say: "The machines and plant installed in our factory have been imported from Japan, but they could be made in India". May I know what machines could be made in India?

Mr. Mehta.—Winding machines and compressors can be made in India.

Mr. Rahimtoola.—You have not tried to manufacture them at present?

Mr. Mehta.—We have tried and we have made one at our works.

Mr. Rahimtoola.—Has it given you satisfaction?

Mr. Mehta.—Yes.

Mr. Rahimtoola.—Where do you sell your bangles principally?

Mr. Mehta.—In Bengal.

Mr. Rahimtoola.—Do you sell in all the provinces mentioned in your answer to Question 44?

Mr. Mehta.—In Bengal itself.

Mr. Rahimtoola.—Then the principal markets you mention are for the general glass bangles trade?

Mr. Mehta.—Yes.

Mr. Rahimtoola.—You yourself sell in the Bengal Presidency?

Mr. Mehta.—We being the oldest suppliers of glass bangles get enquiries from all over India. We do ship bangles out to Madras and Bombay as well.

Mr. Rahimtoola.—What percentage goes to Bombay and Madras?

Mr. Mehta.—Bombay—10 per cent.

Mr. Rahimtoola.—Does the freight pay you?

Mr. Mehta.—I send it by steamer.

Mr. Rahimtoola.—From Calcutta?

Mr. Mehta.—Yes by coasting steamer.

Mr. Rahimtoola.—And you find the sea freight cheaper than the railway freight?

Mr. Mehta.—Undoubtedly to a very great extent.

Mr. Rahimtoola.—What period does it take to reach Bombay?

Mr. Mehta.—Direct steamers take 15 days; otherwise a month.

Mr. Rahimtoola.—How much do you send to Madras?

Mr. Mehta.—We only quote rates in Calcutta and they take by steamer.

Mr. Rahimtoola.—You give delivery at your factory as far as your Madras sales are concerned. Do you quote c.i.f. rates?

Mr. Mehta.—We quote c.i.f. rates as far as steamer is concerned; otherwise we give f.o.r. rates, Shalimar.

Mr. Rahimtoola.—About 80 to 90 per cent. of your goods are sold in the Bengal Presidency?

Mr. Mehta.—Yes.

Mr. Rahimtoola.—In answer to Question 53 are you in a position to say that the prices at which Japanese bangles are sold in India are uneconomical?

Mr. Mehta.—Yes, they are.

Mr. Rahimtoola.—Have you been able to ascertain that?

Mr. Mehta.—It costs us more than one anna a dozen and they are selling at 2 sens per dozen pairs.

Mr. Rahimtoola.—Your manufacturing process, your mixtures, your labour and so on may be quite different from that in Japan. I want to know whether you are in possession of facts or figures which would substantiate the statement which you are making at present that it is uneconomical for Japan to sell at this price in India.

Mr. Mehta.—It may be paying to them.

Mr. Rahimtoola.—Do you mean to say that they would be making a heavy loss?

Mr. Mehta.—In industries as far as Japan is concerned, I know it for certain that they always receive subsidy from Government. The more the export, the more they get. The subsidy is calculated on a certain percentage basis.

Mr. Rahimtoola.—Percentage of what?

Mr. Mehta.—Subsidy from Government on the value.

President.—On every kind of produce shipped out of the country?

Mr. Mehta.—Yes. On some articles they do pay subsidy.

Mr. Rahimtoola.—In answer to Question 54 I would like you to make a distinction between the price of machinery and plant and goods manufactured. How much is machinery and plant and how much is goods manufactured?

Mr. Mehta.—Rs. 1 lakh worth of bangles are in stock.

Mr. Rahimtoola.—In 11 months you have been able to store up one lakh of rupees worth of bangles?

Mr. Mehta.—Yes.

President.—One lakh is your unsold stock?

Mr. Mehta.—Yes.

President.—But that is not the figure that you give here.

Mr. Mehta.—I have said Rs. 2 lakhs.

Mr. Rahimtoola.—In answer to Question 65 you say that your stock is only Rs. 40,000.

Mr. Mehta.—That one lakh of rupees is represented by finished goods as well as the raw materials for manufacturing glass bangles.

Mr. Rahimtoola.—In answer to Question 54 you say: "And goods manufactured". I take it manufactured goods are finished goods.

Mr. Mehta.—We have not mentioned any figure there.

Mr. Rahimtoola.—You have mentioned Rs. 2 lakhs. I wanted you to let me know the amount. You said one lakh of rupees.

Mr. Mehta.—Yes including the raw materials.

Mr. Rahimtoola.—The finished goods is only Rs. 40,000.

Mr. Mehta.—Yes, at the present moment.

Mr. Rahimtoola.—You have got stock of raw materials which would turn out bangles to the extent of Rs. 60,000.

Mr. Mehta.—Yes.

Mr. Rahimtoola.—In answer to Question 60 you say: "About Rs. 2 lakhs would be required to enlarge your factory", You mean to make it an economical unit. What is exactly in your mind when you say that Rs. 2 lakhs more is required?

Mr. Mehta.—To produce more bangles.

Mr. Rahimtoola.—That means the present factory of yours is an uneconomical unit.

Mr. Mehta.—Until and unless we manufacture in a large quantity, we will not be able to bring down our costs and our overhead.

Mr. Rahimtoola.—To make it a model factory you require a capital of Rs. 3 lakhs?

Mr. Mehta.—Yes. Now the rent, the Manager's pay, the Japanese wages are just the same. If you manufacture double the quantity the pay would be just the same, the rent would be just the same, the overhead would be less and the cost would be less.

Mr. Boag.—In answer to Question 2 you say that you provided the entire capital for this business. Could you say what the amount of your investment is in this bangles business?

Mr. Mehta.—About Rs. 2 lakhs.

Mr. Boag.—In answer to Question 9 you say that the production of bangles is carried on throughout the year, but the output of bangles is less during the rainy season. What is the reason for that?

Mr. Mehta.—The joining process is the chief difficulty during the rainy season especially in the Reshmi bangles. Certain sort of moisture gets on the glass and while joining that, the soda ash comes out and it is difficult to join.

Mr. Boag.—How long do these conditions apply?

Mr. Mehta.—As long as the rainy season lasts.

Mr. Boag.—Is that about 3 months in the year?

Mr. Mehta.—Yes.

Mr. Boag.—You go on working in spite of this difficulty?

Mr. Mehta.—We have to stop, because it is very difficult to carry on.

Mr. Boag.—In your answer to Question 18, you say that all raw materials are imported from abroad except sand.

Mr. Mehta.—Yes.

Mr. Boag.—That makes the question of protection rather difficult, because one of the conditions laid down for an industry asking protection is that it should possess an abundant supply of the principal raw materials.

Mr. Mehta.—As regards the principal raw materials used in glass manufacture, we use nearly 60 to 70 per cent. Indian produce.

Mr. Boag.—Sand is 60 per cent.

Mr. Mehta.—Yes.

Mr. Boag.—In value?

Mr. Mehta.—Not in value.

Mr. Boag.—In bulk?

Mr. Mehta.—Yes. Sand is the chief thing for manufacturing glass at our disposal. If the Government of India take it up, they can manufacture soda ash as well.

Mr. Boag.—It can be manufactured, but at present you can't get it in this country.

Mr. Mehta.—No.

Mr. Boag.—You have to import your crucibles. You can't get them in this country?

Mr. Mehta.—There are pots which are made in India as well, but we prefer the imported ones.

Mr. Boag.—You have tried pots made in India?

Mr. Mehta.—Yes.

Mr. Boag.—You don't find them as good as the imported ones?

Mr. Mehta.—Imported crucibles are cheaper.

Mr. Boag.—What do you pay for imported crucibles?

Mr. Mehta.—It comes to Rs. 40.

Mr. Boag.—Is the risk of breakage on the voyage yours?

Mr. Mehta.—It is covered by insurance. Rs. 40 covers everything.

Mr. Boag.—Where do you get your furnace refractory materials?

Mr. Mehta.—We buy locally.

Mr. Boag.—Do you know where the bricks are made?

Mr. Mehta.—Messrs. Martin and Company and Burn and Company.

Mr. Boag.—You say that they are satisfactory?

Mr. Mehta.—Yes.

Mr. Boag.—In spite of the fact that they don't last for more than three months?

Mr. Mehta.—Yes.

Mr. Boag.—You don't think it is possible to improve on that?

Mr. Mehta.—Night and day the factory has to be worked at a very high temperature. The fire bricks cannot stand for a longer time.

Mr. Boag.—Have you any idea of the quantity of electric power and gas that you use?

Mr. Mehta.—Yes out of the bills we pay, we know.

Mr. Boag.—What rates do you pay?

Mr. Mehta.—On gas we pay Rs. 4-8 per 1,000 c.ft.

Mr. Boag.—What does your bill come to?

Mr. Mehta.—Rs. 300 a month

Mr. Boag.—And electric power?

Mr. Mehta.—I have a match factory. It is rather difficult for me to split up.

Mr. Boag.—You are using a certain amount of power for the match factory?

Mr. Mehta.—Yes. We have got the workshop.

Mr. Boag.—What is your total bill for electric power?

Mr. Mehta.—At the present moment I am paying Rs. 300 for electric supply, but when we are working in full swing, it goes up to Rs. 1,000.

Mr. Boag.—What is the rate?

Mr. Mehta.—There are two rates. If we go under a certain unit, we have to pay annas 2 per unit and if we go above that limit we pay half an anna per unit and Rs. 5-4 per k.w. for the motor that we have. I have 100 H. P. motor. It comes to nearly 90 k.w.

President.—Have you ever been able to get power at the lower industrial rate? How much does the consumption of electricity in your works amount to taking the rate of 6 pies per unit?

Mr. Mehta.—We have to go over 3,000 units and then only we are allowed that rate. If we are under that, then they charge us two annas and do not charge anything extra for the motor per k.w.

President.—You pay 6 pies per unit consumed and you also pay something extra?

Mr. Mehta.—Yes, Rs. 5-4 per k.w.

President.—How would that work out on your consumption of electricity during the month per unit when you are able to get 5 of an anna? Would you be able to average that?

Mr. Mehta.—The average would be 1½ annas per unit.

Mr. Hodkin.—As against 2 annas?

Mr. Mehta.—Yes.

Mr. Hodkin.—In your reply to Question 9, you say that the output is less in the rainy season. I understood you to say that the soda comes out.

Mr. Mehta.—Yes, in joining the bangles.

Mr. Hodkin.—In that case if you were to put less soda ash into your glass, it might not come out.

Mr. Mehta.—We tried it but to no purpose. I am not an expert, but we have an expert in our factory. He tried his level best. The result was not satisfactory. We had only one rainy season and so I am not able to speak on this. We have just started the factory. The Japanese themselves arrived here only in the month of June and they had to reorganise the works which was formerly on the Ferozabad style.

Mr. Hodkin.—According to the composition which you give here of your glass, I find that you are using a great deal too much soda ash. If you were to use less soda ash and more lime, you would possibly avoid this soda coming out.

Mr. Mehta.—That may be so.

Mr. Hodkin.—And at the same time you would be able to reduce your cost because you would be using less soda ash, and you would be able to work during the hot weather.

Mr. Mehta.—The humidity is very high even in the office. The humidity is so much in Calcutta that workmen who have to go near the furnace would find it extremely difficult to work.

Mr. Hodkin.—That is another argument. It may be better to be near the furnace because the humidity is not so great near the furnace. I am referring only to the composition of the glass. You have so much soda in your glass that it actually comes out when the lamp-blowing takes place and it prevents you from joining the bangles. It seems to me that your glass is inferior. In other words it contains too much alkali.

Mr. Mehta.—That may be so during these three months.

Mr. Hodkin.—Supposing you use less soda ash, do you think that you would be able to melt your glass?

Mr. Mehta.—I have no idea.

President.—What is the temperature you get in your furnace?

Mr. Mehta.—More than 1,200° C. There are certain articles which require a cooler temperature.

President.—What is the maximum temperature which you get on a direct furnace?

Mr. Hodkin.—1,250° C.

Mr. Mehta.—I said 1,200° C.

Mr. Hodkin.—You say that except sand you import your raw materials?

Mr. Mehta.—Yes.

Mr. Hodkin.—Even the lime?

Mr. Mehta.—No. Lime is only used in the manufacture of white glass. It is not required in the manufacture of coloured glass.

Mr. Hodkin.—You must use lime or some similar material. Otherwise you will have the soda coming out.

Mr. Mehta.—I am not an expert and I am unable to speak on that.

Mr. Hodkin.—Mr. Boag mentioned your answers to Questions 52 and 67. In 67-A, you claim that the industry fulfils one of the conditions laid down by the Fiscal Commission. You say that there is an abundant supply of principal raw materials and yet in your answer to Question 52 you say something which is absolutely contrary to that.

Mr. Mehta.—What I meant was this. In Japan they manufacture borax and other articles. Borax is the chief thing. They also manufacture soda ash. With the exception of a few articles they manufacture almost everything.

Bharat Glass Works, Calcutta.

Letter dated the 29th December, 1931.

Though belated I confidently hope and pray that my views will receive the kind consideration of your Board along with those of others.

Enclosure.

PROTECTION TO GLASS INDUSTRY IN INDIA.

I.—THE SURCHARGE ON CUSTOMS DUTY.

First of all, Japan has so reduced her sea freight as fully to counteract the effect of the surcharge. Secondly, to know for certain the precise effect of the surcharge it is necessary to determine the measure of protection, if needed. Finally, as soon as the surcharge is gone the need will re-appear in full. It is desirable therefore to decide the question of the need at once.

II.—THE CONDITIONS FOR PROTECTION.

These must be complied with before the need can be considered.

First Condition—Natural Advantages.

(a) Raw Materials.

The industry has to depend on imported Soda, the cost of which Government alleges, "forms a large proportion of the total cost of production".

Here is the actual proportion:—

Year.	Cost of production.	Cost of soda.	Percentage.
1927-28	38,860	4,160	10.7
1928-29	60,544	6,443	10.6
1929-30	79,017	9,830	12.4

The shares in the cost, of coal and labour compare with that of soda as follows:—

Year.	Labour.			Coal.		
	Cost.	Per cent.	Cost of production.	Cost.	Per cent.	
	Rs.	Rs.	Rs.	Rs.	Rs.	
1927-28	10,609	27.3	38,860	6,710	17.2	
1928-29	18,128	29.9	60,544	10,223	16.8	
1929-30	24,594	31.1	79,017	14,153	18.0	

While, on the basis of quantity the position of soda is as follows:—

	1927-28.		1928-29.		1929-30.	
	Quantity.	Per cent.	Quantity.	Per cent.	Quantity.	Per cent.
Coal	560	76.7	930	79.9	1,415	80.3
Sand	95	13.0	152	13.5	266	15.1
Broken glass	42	5.7	32	2.7	10	0.5
Soda	32	4.4	49	4.2	70	3.9
Total	729	99.8	1,163	100.3	1,761	99.8

It would be clearly unfortunate, therefore, if the vast quantities of sand, coal and refractory materials available in the country were to be left unutilized for an incomparably smaller quantity of soda.

(b) Labour.

The Industrial Commission found trained and expert labour wanting, and according to Government the position has not changed.

The scarcity is a matter of history now. The number of factories has considerably increased—in the vicinity of Calcutta alone from 5 to 10 in 4 years—and all the same the industry is manned entirely by Indians. The quality of the Indian product has improved to deserve the patronage of Government and Railways, unmistakably pointing to better training and efficiency of the labour force. The production per head has also considerably gone up. So, labour is duly adjusting itself to the growing demand in every respect.

Government also deplores the lack of "scientific and technical knowledge". Their own endeavours to make up the deficiency failed, and private efforts, of necessity leave much to be desired. Much, too, however, has been actually done. The Government of Madras have investigated into the best manner of construction of the furnace and published the results in Bulletins. Proficiency in the use of automatic blowing machines has been acquired in the Continent and such machines brought into operation in India. The use of liquid fuel for coal has been innovated with commercial success. The local manufacture of Soda has been undertaken on a scale commensurate with its demand. Melting Pots are also being made locally.

Second Condition—Inability to grow.

There is no question as to the lack of growth during the last 30 years. The only one is whether the industry is of sufficient economic interest to the country. Such interest consists in—

- (1) Present (½ crore) and prospective (2½) saving to the country.
- (2) Utilization of sand and coal on a gigantic scale.
- (3) Contribution to the development of other industries—
 - (a) Enhancement in output and improvement in quality of saltpetre.
 - (b) Development of refractory materials, for which the steel industry did not furnish adequate incentive.
 - (c) Contribution to railway revenues.
- (4) Employment of a few thousands. The number is lesser part of the interest. The industry furnishes to the educated middle class an wide field for profitable application of their best academic acquirements and an unbeaten path for employment as well.

Third Condition—Ability to dispense with protection.

The essential is the reduction in the cost of production so as to produce as cheaply as other countries.

The indication is as follows:—

Year.	Output.	Total cost.	Cost per ton.
	Tons.	Rs.	Rs.
Works costs—			
1927-28	65	31,282	481.1
1928-29	107	50,505	472.0
1929-30	146	67,968	465.5
Overhead charges—			
1927-28	65	7,578	116.2
1928-29	107	10,039	93.7
1929-30	146	11,049	75.6

The probabilities for further reduction lie in the directions of—

(1) *Railway Freight—Absorbs at present:—*

	Out put.	Total cost.	Cost per ton.
	Tons.	Rs.	Rs.
January to May 1929 .	50	1,651	33
June 1929 to May 1930 .	146	5,014	34.3

General reduction in railway freight is under the contemplation of the Railway Board. Special concession has been granted to bangle manufacturers and cannot be withheld from us.

(2) *Local manufacture of Soda and Pots.*—The elimination of the import duty of 15 per cent. *ad valorem* alone would effect saving of:—

	Out-put.	Present cost.	Saving at 15 per cent.	Reduction in cost per ton.
	Tons.	Rs.	Rs.	Rs.
1927-28 .	65	5,164	765	11.7
1928-29 .	107	8,119	1,215	11.3
1929-30 .	146	11,909	1,765	12.0

(3) *Improved Efficiency.*—A small increase of 5 per cent. in output per head would effect a saving of—

	Out-put.	Present cost.	Saving at 15 per cent.	Reduction in cost per ton.
	Tons.	Rs.	Rs.	Rs.
1927-28 .	65	10,609	530	8.1
1928-29 .	107	18,128	905	8.4
1929-30 .	146	24,594	1,225	8.3

Automatic machines would also help to reduce the cost of labour which I am not in a position to forecast.

(4) *Larger scale of operations.*—For instance, if I could instal 7 Pots in place of 5 and increase the capacity of each Pot from 400 to 600 lbs., the output of finished glass would be doubled to 300 tons annually. The only increase in overhead charges would be under the head interest on working capital, which would also double itself, all the other items remaining as they are.

In works costs there would be a saving under the head coal, but it is hard to guess what it would be.

Special Condition—Utility in National Defence.

This was emphatically brought home to the Government of India during the last European war when foreign supply failed.

III.—DISCRIMINATING PROTECTION.

(a) *Kinds of glass to be protected.*

Glass of superior quality is not manufactured and should be left untouched. The following classes of articles made of ordinary commercial glass need protection:—

I.—Blown glass—

(1) Lampware—

- (a) Oilpots.
- (b) Hurricane globes and chimneys.
- (c) Electric and gas shades.
- (d) Wellglass and bulkhead fittings.

I.—Blown glass—*contd.*

- (2) Containers—
 - (a) Bottles.
 - (b) Jars.

II.—Drawn glass—

- (1) Rod.
- (2) Tube.

III.—Coiled glass.—Bangles of sorts.

IV.—Pressed glass—

- (1) Inkpots.
- (2) Tumblers.
- (3) Cups.
- (4) Paper weights.

V.—Sheet glass—

- (1) Plain.
- (2) Chequered.

(b) *Countries to be guarded against.*

British goods are of superior glass and would not come within the purview of protection.

American goods command higher prices, but to discriminate them would reflect adversely on the Indian industry.

Continental goods enter India at prices below the cost of production of the Indian manufacturer, while Japanese goods, the cheapest of all, have brought the Indian industry to the verge of ruin.

No discrimination in this direction is therefore necessary.

IV.—THE NEED FOR PROTECTION.

(1) *Prices of Imported Glass.*

Have been steadily going down since 1921 and there is no chance of near recovery in view of the world wide trade depression. The price of hurricane globes from Japan is Rs. 16 per gross which should form the basis of our calculations.

(2) *Fair Selling Price for the Indian manufacturer.*

A.—Cost of Protection.

1. Its variation under different conditions.—The important ones are:—

- (1) Geographical situations with reference to—
 - (a) sources of supply of raw materials,
 - (b) the market for the finished goods. They re-act on each other resulting in a debit or credit balance.
- (2) Kind of fuel used—Coal, wood, gas or oil.
- (3) Kind of melting receptacle—Pot or tank.
- (4) Method of manufacture—Automatic or manual.
- (5) System of management—Personally or by Managing Agents.

2. *The Prevailing Type.*—80 per cent. of the existing factories still adhere to the primitive method of manufacture by coal furnaces, pots and blowing tubes. Such is the industry as it exists at present and such therefore should be the standard for own purposes.

3. *My Factory.*—Is of this type with the additional advantages that it was not managed by agents nor had a costly head office out of the factory.

4. *The period covered.*—For detailed study the period covered is the third year of my working—from June 1929 to May 1930.

5. *Maximum capacity in that year.*—I worked with 5 pots of 400 lbs. each.

The rated capacity $5 \times 400 = 2,000$ lbs. per day.

Deduct—

Margin in loading $2\frac{1}{2}$ per cent. . .	}	20 per cent. in all 400 lbs.
Margin in emptying $2\frac{1}{2}$ per cent. . .		
Loss in evaporation 15 per cent. . .		

1,600 lbs. per day of molten glass.

Half was made into bottles and other half in hurricane globes.

	Lbs. per day.
The quantity of finished bottles—	
Molten glass	800
<i>Deduct—</i> Wastage in putting into and taking out of annealing chamber and in loading and unloading for delivery—10 per cent.	80
	720
The quantity of finished hurricane globes—	
Molten glass	800
<i>Deduct—</i> Wastage in cutting off superfluous part, grinding and packing in straw 15 per cent. in addition to the wastage of 10 per cent. as in the case of bottles—25 per cent.	200
	600
Total per day—	
Bottles	720
Hurricane globes	600
	1,320

Considering the year to have consisted of 330 working days, the annual capacity is $1,320 \times 330 = 194$ tons.

6. *The actual outturn—*

	Tons.
Hurricane globes	80
Bottles	66
	146

7. *Works costs.*—First, I give a comparative statement for 3 consecutive years—

	1927-28.	1928-29.	1929-30.
Output	65 tons.	107 tons.	146 tons.
	Rs.	Rs.	Rs.
1. Materials—			
(a) Ingredients	8,757	12,833	17,910
(b) Coal	6,710	10,223	14,153
(c) Fire-bricks and clay	1,203	1,337	1,251
(d) Pots	1,004	1,676	2,079
(e) Packing materials	243	1,743	2,731
2. Labour	10,609	18,128	24,594
3. Delivery	307	685	2,237
4. Transport	554	1,381	123
5. Rent and tax	1,602	1,602	1,881
6. Electric	144	467	460
7. Miscellaneous	149	430	549
Total	<u>31,282</u>	<u>50,505</u>	<u>67,968</u>
Cost per ton	<u>481.1</u>	<u>472.0</u>	<u>465.5</u>

The cost per ton as shewn above does not discriminate between that of bottles and hurricane globes which I proceed to do for the last year.

The total cost of ingredients was Rs. 17,910. But due to disparity in wastage between bottles and globes as pointed out above, the latter must have cost more than the former to the extent of 15 per cent. Setting apart this 15 per cent. from the total cost we get—

	Rs.
Total cost	17,910
Deduct—Wastage for globe at 15 per cent.	2,686
	<u>15,224</u>

Distributing this over the entire production of 146 tons we get Rs. 104.9 as the cost per ton of bottle.

The additional wastage of Rs. 2,686 has to be distributed over the output of globes of 80 tons and we get Rs. 33.5 as the additional cost of ingredients per ton of globes, the ultimate cost of which thus comes to Rs. 138.4

The cost of packing materials is to be debited entirely to globes and the additional cost on this account is Rs. $2,731 \div 80 =$ Rs. 34.1 per ton.

The other materials do not require such discrimination and their cost comes to—

	Rs.
Coal	14,153
Fire-bricks and clay	1,251
Pots	2,079
Total	<u>17,483</u>

Distributing this over the entire production of 146 tons the cost per ton is Rs. 119.7.

Thus—

	Rs.
Cost of materials per ton of—	
(1) Bottle	104.9
	<u>119.7</u>
	224.6
(2) Globes	138.4
	<u>119.7</u>
	34.1
	<u>292.2</u>

The cost of labour has also to be discriminated. The special labour charge for globes is—

	Rs.
Cutting	720
Grinding	1,344
Packing	1,008
	<u>3,072</u>
Total	3,072

or Rs. 38.4 per ton.

That for bottles for neck making is Rs. 1,752 or Rs. 26.5 per ton.

The total special charge for them both—

	Rs.
Globes	3,072
Bottles	1,752
	<u>4,824</u>
Total	4,824

Setting this aside from the total we get—

	Rs.
Total labour cost	24,594
Less special	4,824
	<u>19,770</u>

for distribution over 146 tons which gives Rs. 135.4. Adding to this the respective special charges we get—

	Rs.
Bottles	135.4
	<u>26.5</u>
	161.9 per ton.
Globes	135.4
	<u>38.4</u>
	<u>173.8 per ton.</u>

The rest of the charges do not require allowance and come together to—

	Rs.
Delivery	2,237
Cart and cooly	123
Rent and taxes	1,231
Electric	460
Miscellaneous	549
Total	<u>4,650</u>

or Rs. $4,650 \div 146 =$ Rs. 31.8 per ton.

	Bottles.	Globes.
	Rs.	Rs.
The total works costs thus come to—		
Materials	224.6	292.2
Labour	161.9	173.8
All other charges	31.8	31.8
Total	<u>418.3</u>	<u>497.8</u>

B.—OVERHEAD CHARGES.

First, a comparative statement for three years—

	1927-28.	1928-29.	1929-30.
	Rs.	Rs.	Rs.
1. Interest on working Capital	600	720	960
2. Depreciation—			
(a) Buildings	360	525	750
(b) Machinery—			
(1) Chimney	35	52	70
(2) Motor	40	60	80
(3) Grinding wheels	300	300	450
(4) Moulds	1,281	1,722	1,870
3. Lorry . . . . .	...	...	300
4. Management	2,400	3,000	3,600
5. Commission	1,357	2,199	1,611
6. Head Office—			
Salaries	960	960	1,200
Stationery	119	162	134
Printing	126	339	324
Total	<u>7,578</u>	<u>10,039</u>	<u>11,349</u>
Cost per ton	<u>116.2</u>	<u>93.7</u>	<u>77.6</u>

1. *Interest.*—Working capital has been taken at 3 months works costs and correspond with actuals Rs. 10,000, Rs. 12,000 and Rs. 16,000 respectively. The rate of 6 per cent. is less than fair, as I had to borrow at 12 per cent.

2. *Depreciation.*—Buildings consists of corrugated sheds on *sal* posts and are liable to rapid deterioration. So 9 per cent. for the first year, 12 per cent. for the second and 15 per cent. for the third is not unfair.

The actual amount spent in the first year was Rs. 4,000 only. Rs. 500 and Rs. 1,000 were added in the second and third year respectively.

On machinery depreciation has been calculated at 5 per cent., $7\frac{1}{2}$ per cent., 10 per cent. respectively.

Grinding wheels and moulds do not last the whole year and their full amounts have been charged.

3. *Management.*—The amounts shown are those drawn by the Managing Proprietor.

The total cost of production is thus—

	Hurricane globes.	Bottles.
	Rs.	Rs.
Works costs	497.8	418.3
Overhead charges	77.6	77.6
Total	<u>575.4</u>	<u>495.9</u>

C.—Manufacturers Profits.

The fixed capital expenditure on building and machinery is—

	Rs.
Buildings	5,500
Machinery	1,500
	<u>7,000</u>

A 10 per cent. profit is not unfair, and would come to Rs. 700 in the year, the incidence per ton being $\text{Rs. } 700 \div 146 = 5$.

The fair selling price for the Indian manufacturer therefore comes to—

	Hurricane globes.	Bottles.
	Rs.	Rs.
Cost of production	575.4	495.9
Profit	5	5
Total	<u>580.4</u>	<u>500.9</u>

(3) *The measure of the need.*

Taking 8 oz. per globe and 31 gross per ton the selling price is Rs. 19 per gross, whereas the price of imported globe is only Rs. 16 per gross. Protection is therefore needed to the extent of Rs. 3 per gross.

V.—FORM OF PROTECTION.

In view of the financial embarrassment of Government nothing but a protective duty would seem feasible to provide for small fluctuations in the price of the imported articles and *ad valorem* duty would be preferable to a specific duty. The rate of 20 per cent. would just suffice for the purpose.

VI.—THE PERIOD OF PROTECTION.

Considering how slow the growth of the industry has been, it is apparent that protection for a short period would be no avail. To my mind no shorter period than 10 years would meet the case.

VII.—HOW PROTECTION WOULD AFFECT OTHER INDUSTRIES.

Glass tube and rods form partly manufactured goods from which are made syringe, test tubes and a few kind of other appliances. There is in existence small industry exclusively devoted to these articles. This industry would require compensatory protection. Then the manufacturers of drugs, chemicals, hair oils, perfumery, etc., who have to put up their preparations in glass containers would also be affected to an extent not at all serious. For, their cost of the container cannot exceed 5 per cent. of their cost production, which would be increased by 1 to 1.5 per cent. in consequence of the protection.

RECAPITULATION.

Notwithstanding the dependence of the industry on imported soda natural advantages with regard to all other materials preponderate in favour of it.

Labour is adjusting itself to the demand in every respect.

The industry is of versatile economic interest to the country.

It is reducing its cost of production and therefore would be able to dispense with protection.

It has its own importance for national defence.

Articles made of ordinary glass only need protection. No discrimination is necessary with regard to country of origin.

The selling price of imported globe is Rs. 16 while that of the Indian manufacturer is Rs. 19 per gross. Protection is therefore required at Rs. 3 per gross, which, in view of financial embarrassment of Government and with a view to provide for fluctuations in the price of the imported articles may be in the form of *ad valorem* 20 per cent. To be adequate it must not last for less than ten years.

Small industry making certain articles from glass tube requires compensatory protection. Manufacturers of articles requiring to be put up in glass containers would be affected so slightly as to deserve no special consideration.

Hardeo Glass Works, Dacca.

(1) Letter dated the 31st August, 1931.

We have started a glass factory in Dacca town (Bengal) under expert management.

We are much inconvenienced in respect of railway freights charged, so much so, that we are being ousted from our own area, i.e., the places served by Eastern Bengal and Assam Bengal Railways by our opponents in United Provinces and Central Provinces.

We are charged 4th class by both Eastern Bengal and Assam Bengal Railways for chimneys and jars, whereas manufactories of United Provinces and Central Provinces are made 2nd class by all railways and under this concession they enter into our area and we are gradually being driven from the market although our goods are in good demand due to fine finish.

Then, sand, one of the chief ingredients in manufacturing glasses, is now being imported from Great Indian Peninsula Railway side and for this we are getting concession rates from Great Indian Peninsula Railway, but if East Indian Railway gives us same concession over their line we may import better quality of sand from Bombay, Baroda and Central India Railway side *viâ* Agra and Naihati.

Our submission is that you being the protector of small industries, may be pleased to request both Eastern Bengal and Assam Bengal Railways to charge us at least 2nd class for chimneys and jars over their lines and East Indian Railway for special rates for sand.

Ours have become a growing industry within a short period, but due to hard competition we are daily being hard hit, so kindly help it from premature ending.

(2) *Letter dated the 17th November, 1931, from the Hardeo Glass Works, Dacca.*

We have the honour to submit that we started glass factory at Dacca (Bengal) for nearly two years.

1. Capital invested is over Rs. 60,000.
2. Glass chimneys—different varieties, pickle jars, phials and bottles, tumblers and shades, etc., are manufactured.
3. Total output for 1930 is about Rs. 95,000.
4. Pot furnace is used.
5. Current expenditure for 1930 is Rs. 1,15,000 entailing loss over Rs. 20,000.
6. Competition with foreign goods particularly Japanese.

(a) Now our submission is that due to unfair treatment of Eastern Bengal and Assam Bengal Railways and India General and River Steam Navigation Co., Ltd., who show indulgence to foreign as well as other manufacturers outside my area by giving them concession freight. We cannot work within our area, viz., East and North Bengal and Assam due to enhanced freight.

(b) Pickle jars and tumblers, etc., are charged 6th class and chimney 4th class against 2nd class to our opponents causing loss of trade.

(c) Sand, lime, pots and coal are required to be brought from United Provinces, Central Provinces and East Indian Railway side and we have requested the respective companies to grant concession rates but to no purpose. The present freight charged is excessive and increases the cost of output.

(d) Protection is urgently needed otherwise the factory to be closed down as the last year's loss was heavy.

(e) East Indian, Bombay, Baroda and Central India, Eastern Bengal, Assam Bengal Railways, and India General and River Steam Navigation Co., Ltd., to be requested to grant concession rate for the import and export for at least three years to enable the business to be self-supporting.

As in duty bound we shall ever pray.

(3) *Letter dated the 12th December, 1931, from the Hardeo Glass Works.*

We have the honour to submit the following answers to the questionnaires:—

1. Ours is an unregistered firm for a private proprietor.
2. Nil.
3. Work commenced on 1st January, 1930.
4. Full capacity of our works is 3,500 lbs. daily.
5. (a) Chimney, Tumblers, Pickle Jars, Bottles and Phials are manufactured.
- (b) Cannot supply the information asked for.
6. Factory is situated within the Municipality of Dacca town in East Bengal.
- (a) No. Not in the vicinity to the areas from which raw materials are drawn.
- (b) No. Not in the vicinity of coalfields or other sources of power or fuel.
- (c) Yes, Dacca and Narayangunj market.
- (d) No abundant labour supply.
7. Consider big markets as the most important factors.

8. Yes, ours is equal in quality and appearance to imported articles, ours do not command the same price. People consider our production less durable.

9. Production continues all the year. Our cost of production is heavier.

10. Sand, soda ash, saltpetre, lime, crucibles, coal, fire-brick and clay are the raw materials used.

11. The annual requirements of raw materials—

Soda ash	100 tons.
Sand	360 „
Lime	25 „
Coal	1,800 „
Fire-brick and clay	250 „
Crucibles	120 pots.

12. Cannot say.

13. Crucible pots from Japan. Coal from Raneegung (East Indian Railway). Sand from Bargarh and Lohagarh and Swaimadhupur (Great Indian Peninsula Railway). Fire-clay and brick from Barakar (East Indian Railway).

14. Raw materials are collected by rail or steamer.

15. We pay no royalty.

16. (a) Royalty—Nil.

(b) Labour employed—Rs. 5,000 per annum.

(c) Freight charged—Rs. 2,000 per annum.

(d) Miscellaneous charges—Rs. 500 per annum.

17. We hold no concessions.

18. We require to import raw materials from Japan and parts of United Provinces, Bengal and Central Provinces in India. Coal Rs. 2-12 per ton, sand As. 2-6 per maund, lime As. 8 per maund, pots at Rs. 60 a piece. Pay no customs.

19. Pots that we get from Japan cannot be made here.

20. Materials suitable to our purposes.

21. Nothing competes except pots and soda ash.

22. We don't make crucibles and we get it from Japan and don't know its composition; it costs from Rs. 40 to Rs. 60 and last average 3 weeks.

23. Furnace materials are satisfactory. No knowledge of composition.

24. Yes. Expert supervision and skilled labour necessary, the former from either Japan or Germany and the latter from United Provinces or Punjab.

25. Foreign labour one and other skilled labour from different parts of India.

26. Indian labour improves vastly with training.

27. No means of replacing skilled labour.

28. Machinery replacing labour costs heavily.

29. Yes, the humidity in the air affects the efficiency.

30. (a) & (b) Cannot supply.

(c) Total number of workmen—200.

31. Houses on the premises for imported labours.

32. Principal fuel are coal and wood and available in full.

33. Coal is brought from a distance of over 350 miles and woods within 50 miles. Freight for coal is Rs. 7-4-10 per ton and wood As. 8 per maund and other cost Re. 1 per ton.

34. Fuel is used in the furnace and then gas.

35. Yes, electric power is used, the current is bought,

36. $2\frac{1}{2}$ ton coal necessary for 1 ton melted glass. $\frac{1}{2}$ ton coal necessary for finished glassware.
37. Extension of works brings in economy.
38. Cannot state fully.
39. We are not fully equipped with latest machinery to compete with imported articles as regards finish, etc.
40. No experience.
41. We cannot say.
42. All machinery are imported.
43. Cannot say.
44. Our principal markets—Bengal, Bihar and Assam—Distance from 10 to 700 miles.
45. Present rates of railway freight are 4th and 6th class no advantage over imported wares.
46. Railway freight charged on gross weight including packing ratio of nett and gross weight is 2 to 1.
47. Export of glass is not probable.
48. Japan and Germany and Belgium are the competitors.
49. (1), (2), (a) & (b) Cannot reply correctly.
50. Cannot say.
51. Nothing purchased by Government or other public bodies.
52. We are at a disadvantage with foreign manufactures, in respect of freight principally and machinery and custom duty.
53. Cannot say.
54. (a) Leases—Rs. 1,100.
 (b) Lands—Nil.
 (c) Buildings—Rs. 15,000.
 (d) Plants, etc.—Rs. 10,000.
 (e) Miscellaneous assets—Rs. 500.
55. In our case, no depreciation written-off during the first year.
56. Cannot say correctly.
57. Ours being old for a year we cannot supply.
58. No debenture loans.
59. No reserve fund.
60. Additional capital up to Rs. 40,000 would be necessary.
61. Yes.
62. Percentage of wastage 20 per cent.
63. Cannot give correct idea.
64. We pay no income-tax as yet.
65. Average value of stocks of raw materials as fuel, etc.—Rs. 25,000.
 Average outstanding—Rs. 20,000.
66. No head office other than local management, under owners control.
 (a) Annual amount of local office expenses—Rs. 6,000.
 (b) Agent's commission—Rs. 2,000.
67. (a) We don't claim anything stated herein.
 (b) Without protection the industry is not likely to develop.
 (c) Without protection we won't be able to face world competition.
68. (a) Amount of protection necessary Rs. 20,000 per annum.
 (b) In the form of freight it should be given.
 (c) Chimney, tumblers, pickle jars and bottles.
69. Only railway and steamer companies to be affected for reduction in freight.

Ogale Glass Works, Ltd., Ogalevadi.

A.—WRITTEN.

(1) *Letter dated the 19th December, 1931.*

Referring to your letter No. 666, dated the 16th November, 1931, we forward you herewith our replies to the questionnaire of the Board. Seven copies in all are sent.

REPLIES TO QUESTIONNAIRE OF THE INDIAN TARIFF BOARD FOR GLASS MANUFACTURERS.

1. Our Works were started as a proprietary concern in 1914. Later on a joint stock company was floated in 1919, to take it over for running. The Works are, therefore, now owned by a public registered company.

2. The entire capital is held by Indians. All the Directors, of whom there are seven, are Indians and the *ex-officio* Director only forms part of the superior management.

3. As a proprietary concern our Works commenced to manufacture in 1914 and as owned by a public registered company in 1920.

4. The present capacity of our Works is to melt and work about three tons of glass per day.

5. (a) We make all sorts of glass chimneys and globes, jars and similar kind of hollow ware, pressed articles such as dishes, bowls, tiles, inkstands and other articles of stationery.

(b) No correct data is available about the quantity of each kind of ware produced in the past, though roughly the total figure for production may be put down to 80,000 dozen. In the current year the production is increased as we have produced 110,000 dozen during the last eleven months.

6. The Works are situated at Ogalevadi—a colony created for the factory and its people only, in the Aundh State, in the District of Satara, Bombay Presidency—very near to the Karad railway station (Madras and Southern Mahratta Railway) on the Poona-Bangalore line.

(a) Out of the principal raw materials, silica and lime can be tapped in the vicinity and soda ash which is an imported stuff as well as the other chemicals have to be obtained from Bombay.

(b) The coalfields of this country being located only in Bengal and Bihar, unfortunately our place is unable to enjoy the advantage afforded by their vicinity. Round about here, there is no source of power and we have, therefore, to generate it for ourselves.

(c) Bombay which is a port market and which is only 225 miles from here can be said to be very near to us. Moreover we also cater to the market places of southern India.

(d) We have here an abundant labour supply and in addition to this, this place enjoys the advantages of a very healthy and temperate climate.

7. Naturally a site having the advantages of nearness to raw materials, coal, market and an abundant labour supply will be the best. But in view of the fact that India is a vast country and has great mineral resources for the supply of raw materials, spread in her different provinces, and that there is all over an abundant labour supply as well as a number of market places situated in different directions separated from each other by great distances, the factor of remoteness from coalfields should not much matter and the glass factories have to be started at different countries. On the other hand coal which is the principal fuel for heat should be made specially cheap by the Government whenever it is required by glass factories where coal is one of the most important items—as important as raw material.

8. So far as lamp chimneys and globes are concerned (and they form the bulk of our production) they are equal in quality and appearance to imported glassware. They do not, however, command the same price which is mainly due to a faulty impression among the importers that the indigenous articles cannot be as good as the imported ones. Such an impression might be due to the long-standing reputation of the imported ware but the opinion that the Indian glassware is as good as the imported one in point of quality is gaining ground.

9. We work throughout the twelve months of a year.

10. The raw materials including fire-resisting materials used are: silica, soda, lime, de-colouriser, fire-clay and fire-bricks.

11. We require about 160 tons of sand, 60 tons of soda and 20 tons of lime annually.

12. The proportion of raw materials used is:—

100 parts by weight of sand.

40 parts by weight of soda.

10 parts by weight of lime.

13. We obtain our supplies of sand from places round about and at times from places in the United Provinces which are about 1,000 miles away. Soda ash is obtained from Bombay which is about 225 miles from here and lime is obtained locally.

14. We do not collect our materials ourselves. They are collected by our suppliers and are transported from the sources of supply to the nearest railway station here by rail from where they are taken to the Works by carts.

15. Since we do not do the collection we ourselves do not pay any royalty either to Government or to private persons. Perhaps the suppliers may be paying some but we have no knowledge of it.

16. Since as stated above we ourselves do not do the quarrying or extraction work, our total cost on the materials are divided into price at place of despatch and freight. The following are, therefore, the particulars:—

	Sand.	Soda.	Lime.
	Rs. A. P.	Rs. A. P.	Rs. A. P.
Price per ton f.o.r.			
place of despatch .	8 12 6	135 0 0	28 0 0
Freight	24 2 9	14 14 6	...

17. We do not hold any concession as regards the supply of raw materials.

18. Soda ash and some minor chemicals are the imported materials. Soda ash is supplied to us by the well-known combine in chemicals—The Imperial Chemical Industries (India), Limited. They sell it to us at present at Rs. 135 (magdhi ash) and Rs. 145 (crescent brand ash) per ton though their price in 1915 for the latter was Rs. 84 and in 1914 Rs. 72 per ton. It is not known to us at what price they import this material. We only know that soda ash was subject to an import duty of 15 per cent. before March, 1931, after which the duty was raised to 20 per cent. and later on to 25 per cent. It is not known why the price of soda ash should not touch the pre-war level when in fact every other commodity in the market has done so.

19. As we do not know the possibilities of starting chemical industries in India we are unable to say anything. Perhaps the Department of Industries will be able to give an opinion.

20. The materials used by us at present are quite suitable for the manufacture of glassware which we produce. But better results could have been obtained had the suppliers as a class been technical persons. What happens is we have to depend upon contractors who know the least of glass manufacture and are not careful enough in supplying the materials of uniform quality.

21. The raw materials going into the glass which are imported and compete with our products, are mostly the same as ours.

22. We make our own pots of Japanese type from Indian clays, the pots being hand built. In the past they were being imported from Japan, the price varying according to the fluctuations of the Exchange. A 600 lbs. capacity pot used to cost about Rs. 50. The effect of transition on the life of the pot is not known to us.

23. Our furnace refractory materials are satisfactory. We get our bricks and clay from Messrs. Burn & Co., Jubbulpore, and make our own blocks from the latter here.

Labour.

24. So far as the hollow and pressed ware is concerned (of the nature we produce) there is no necessity of importing any skilled labour or experts for supervision.

25. No imported labour was or is employed in our Works. The entire labour and experts employed in our Works are Indian.

26. We have been following a policy of training our own skilled labour and it is our experience that the Indian labour improves sufficiently with training and proper handling.

27. There are automatic and semi-automatic machines to replace the skilled labour.

28. Present conditions of this industry in India differ very widely from what exists in foreign countries. Naturally machines which are designed to meet the conditions in foreign countries are found to be not exactly meeting the present-day-requirements of the Indian glass industry. Employment of such machines, therefore, immediately to replace the manual labour, is expected to entail very huge capital.

29. The high temperature at which many processes in glass manufacture are carried on, have some effect on the labour no doubt but owing to temperate climate of our place does not affect it appreciably.

30. (a) The total wages paid in the year 1930 were Rs. 20,000 approximately.

(b) The total number of workmen were about 125.

(c) The average rate of wages was Rs. 40—50 to the skilled labour and Rs. 15—20 to the unskilled.

31. We house our labour in precincts of our yards. Every care is taken of the labour even when it is outside of the factory proper. Free medical aid is provided to them and free education to their children. Games are introduced among them and social functions held in which the management participates. In short, the management lives, plays and associates with the labour in its daily life.

Power and Fuel.

32. We use Bengal coal as the principal fuel and it is available in sufficient quantities.

33. It is brought from a distance of 1,500 miles the freight amounting to Rs. 15-6-11 per ton the total cost delivered at Works being about Rs. 20 per ton. We understand that railway freights on coal are being enhanced by 15 per cent. from 15th January, 1932. If this happens naturally the Indian glass manufacturers will be hard hit. It should, therefore, be the outlook of the State to see that the rate of railway freight on coal, when supplied to glass factories of which it is a principal fuel, should be specially reduced.

34. The fuel is applied directly, as the unit is small and the type of the furnace suits such a unit.

35. We generate electric power mechanically at the Works. Power is required in the blowing, pressing, mixing and grinding or finishing processes.

36. Apparently one ton of coal is required to melt one ton of glass, but taking into consideration the breakdowns, breaking of pots, etc., the figure varies to five times that of the finished glassware, in tons.

Equipment.

37. As it is or with a little variation our unit can be said to be a fairly large unit of production. The smallest unit producing only one variety of article and not having many things to care for can be operated economically under present conditions but such a practice will hardly mean making an improvement in the industry.

38. The plant and machinery and the process of manufacture employed by us is just the same as is used in a Japanese type pot furnace.

39. Improvement in the type of the furnace and the substitution of machinery in the manufacturing process may reduce costs and improve quality. This, however, will have to be done simultaneously with running the present unit and this means more capital and more experimenting for which capital is very shy.

40. We have introduced a semi-automatic machine for the blowing process and few suitable machines in the finishing one. The results are encouraging.

41. Manufacture in foreign countries is carried on a mass production basis whereas in India the same has to be done on a small scale. The main reason is the failure of some concerns started in the past on a large scale and worked with the aid of foreign experts. Owing to their failure the capital is very shy and we have to be satisfied with running the present types of units.

42. Most of the machines used in this industry are imported from Continental countries.

Market and foreign competition.

43. The estimated total production of glass in India is roughly of about 50 lakhs.

44. Our principal markets are situated in the Deccan and southern India, the nearest one being at a distance of 50 to 100 and the farthest 1,000 to 1,200 miles from the Works.

45. (a) Different rates are in force on the different kinds of glassware. Chimneys and globes go under 4th class and while jars under 6th. We have no advantage over imported glassware in respect of railway freights.

(b) Railway freight is charged on the gross weight. The normal ratio of nett weight to gross weight is roughly 1 to 2.

46. Railway freight paid by importers from the ports to selected up country markets and that paid on our products from Works to the same market varies according to the distance in each case. But the rates of freight from port to port are very favourable as compared with those between our Works and such ports. As a consequence if there is a dearth of ware in one port the importer can carry the imported goods from one port to another very cheaply even by rail whereas there being no such special rates between a manufacturing place and such a port we cannot take advantage of such a situation and carry our goods to a port where the dearth is felt and where a better rate for the goods is likely to be obtained.

47. If cheap shipping is available export of glass from India is possible to Persia, South Africa, Iraq, and Ceylon by sea and to Afghanistan by land though nothing can be said for certain. We are not able to say to what extent such export will be possible.

48. Competition is felt from countries like Japan, Germany, Czechoslovakia and Belgium. It is the keenest in almost all ports.

49. (1) We have no information about the prices at which the principal kind of imported ware entered the country.

(2) (a)	1926.	1927.	1928.	1929.	1930.
	Rs. 19	Rs. 19	Rs. 18	Rs. 17	Rs. 16-8

were realized for one gross of globes for Dietz junior lanterns which is the most common article produced.

(b) This cannot be stated.

50. The importers will be able to say correctly at which the imported glassware is landed in India furnishing also the required details.

51. Some departments of Government and a few public bodies purchase our product but the extent is rather small.

52. We think that as compared with the foreign manufacturers the Indian manufacturer is at a disadvantage in respect of plant and machinery, labour, materials, freights, customs duties, etc.

53. Since the foreign producers have been continuously exporting their wares to India for years past we do not think that they are doing it at uneconomical prices. We, therefore, think that the only reason on account of which the foreign producers are selling for exports at the present prices is their very large units of production and their handling the Indian markets for a very large number of years in the past. The Exchange at 1/6 and want of a protective tariff to the indigenous industry have given them full scope. In absence of protection to the industry none in this country is encouraged to improve the industry and the Indian markets are thus only allowed to be exploited by foreigners.

Capital.

54. The block value of our property as it stood in our books at the end of 1930 was as under:—

	Rs.
(a) Leases and concessions	Nil
(b) Lands	6,500 approx.
(c) Building	1,45,500 "
(d) Plant and machinery	2,47,200 "
(e) Miscellaneous assets	57,850 "

We have two factories, one a glass factory and the other for making hurricane lanterns, and the figures shown above are for both these in aggregate. We have no separate figures under these items for our two factories. But roughly they should be taken as half and half.

55. Figures produced in 54 above represent the nett total expenses on those items up to the end of 1930.

56. Estimates for erecting a unit as that of ours would vary according to the particular situation in each case.

57. (a) The amount of paid-up share capital in the past five years was as under:—

	1926.	1927.	1928.	1929.	1930.
	Rs.	Rs.	Rs.	Rs.	Rs.
	4,63,810	4,77,085	4,79,640	4,82,615	4,83,115

(b) No dividend was declared for the last five years and hence nothing was distributed.

(c) Does not arise.

58. We have not issued any debenture loans. We, however, raised money sometimes by deposits and hand loans on which we pay interest at 9 per cent. or more.

59. We have reserved a fund of thousand rupees created from profits

60. The amount of additional capital required to carry out a scheme of replacement of a plant will depend upon the nature of the replacement or extension. We have not thought over same and hence are unable to give any details.

Works Cost and Over-head Charges.

61. Please find the required details on the form annexed hereto.

62. No correct data is available about the percentage of wastage. However attempts are made to put it at the minimum.

63. We do not make sheet-glass or bangles or bottles and are, therefore, unable to opine on this question.

64. The Income-tax Act allows a depreciation of 10 per cent. and we think this rate is suitable.

65. (a) The average value of the stocks of raw materials, fuel and finished goods is Rs. 60,000.

(b) The average outstandings in respect of goods sold are Rs. 32,000.

66. We have no office as head office at any other place than the place of the Works.

Claim for Protection.

67. (a) We firmly believe that the glass industry in India thoroughly satisfies the three conditions as laid down in their report by the Fiscal Commission namely an abundant supply of raw materials, a sufficient supply of labour and a large home market. About the sufficiency of labour and the largeness of market nothing is required to be said, as both these exist in this country apparently. About the supply of raw materials they exist in abundance in all parts of India. Moreover it is our experience that once an industry is started more and more raw materials get naturally tapped and large avenues of supply are opened.

(b) We also believe that without the help of protection the industry is not likely to develop. In fact it did require this protection when it first approached Government for protection six years ago. The very fact that it has been pulling itself on against the onslaught of the already developed world glass industry which is an advanced for a good many number of years, is itself a proof that this industry has already taken a firm root in the land and if protected at the proper time will have its natural growth in the years to come and after a few years will be able to hold its own.

In absence of any protection there is no encouragement to anybody to go in for methods more scientific than those followed at present, costly in the beginning but economical in the long run. If, therefore, the required opportunities are made available to the industry by protecting it more capital will come in and more people will take themselves to the manufacture of the different sorts of glassware required and consumed in India and for which India itself is a big home market. In this connection we beg to point out that America which is well-known to be a highly developed country and has been in the industrial field for a number of years in the past is protecting its glass industry by tariff 66 per cent. even in these days. Even England raised her import duties to protect her glass industry to 50 per cent. It is remarkable that this sort of protection is being resorted to in these days by countries like England and America. We do not, therefore, think that any other proof will be required to prove the ground for protecting the Indian glass industry by raising the tariff to a degree sufficiently high.

68. (a) An import duty of 60 per cent. should be laid on the import of all glassware for about fifteen years.

(b) It should be given in the form of a bounty to those who run their factories on a certain minimum requirement by way of developing the industry in all its aspects.

(c) Protection is required for all classes of glassware.

69. We do not think that any other industries are likely to be affected by a protective duty on glass.

Statement showing the total expenditure incurred at Works on the production of glass during the past five years.

	1926.	1927.	1928.	1929.	1930.
	Rs.	Rs.	Rs.	Rs.	Rs.
Raw materials other than soda ash	15,415	17,737	16,034	16,193	14,096
Soda ash	7,425	6,569	8,102	9,491	7,316
Refractory materials	5,079	3,512	4,228	1,008	2,621
Other materials	1,554	1,880	1,209	897	1,662
Works labour	22,680	19,734	19,190	18,581	19,243
Power and fuel	25,358	24,821	26,573	33,026	28,872
Supervision and office establishment	5,495	5,400	5,588	4,885	5,967
Current repairs and maintenance	1,243	872	1,173	325	919
Packing	17,089	13,676	13,058	12,770	12,791
Selling expense	14,130	10,981	68,781	5,514	6,288
Miscellaneous expenses, e.g., stationery, rent, taxes and other general charges	9,877	11,090	6,755	8,389	8,729
Total	1,25,345	1,16,272	1,10,691	1,11,079	1,08,504

Total production in tons of glass for the year—

(a) Melted (not recorded).

(b) Finished 148 172 176 167 168

(2) *Reasons and suggestions submitted by the Ogale Glass Works, Limited, Ogalevi, as to the ways in which protection should be granted to the existing glass industry in India.*

1. By the production of the many glass factories now existing in the country the imports of chimneys and globes which are the articles of common use in the country have been sufficiently checked. If, therefore, the tariff on importation of same is raised the average consumer is not likely to be hard hit as the commodities of daily requirements are not likely to be taxed.

2. When the tariff is raised as suggested, manufacturers who are now heading only for chimneys and globes will take themselves to the manufacture of other articles which are usually imported and the manufacture of which will be better paying than chimneys and globes owing to the enhanced tariff.

3. As the attention of some of the manufacturers will be diverted to articles other than chimneys and globes the internal competition will be lessened and those who are taking part in it at present will have time to reconsider their rates and as they will have nothing to fear about dumping by foreigners owing to the protective tariff they will be able to reap the benefit of better rates, improve their own methods and be prepared to face

competition in future. Those who prefer to be away from the internal competition will export their ware outside India and will get a bounty per ton or per gross so exported.

(3) *Letter No. 257, dated the 25th January, 1932, from the Ogale Glass Works, Ltd., Ogalevadi.*

As desired by the Board at the time of our oral evidence we forward you herewith 6 copies of—

- (1) the analysis of Gokak and Goa Sands,
- (2) the quantities of materials going into one ton of melt and copies of our Balance Sheet—one copy only for each year—for the last 3 years.

Enclosure.

Quantities of Materials going into One Ton of Melt.

	Pounds.	Rate per ton.		Value.	
		Rs.	A. P.	Rs.	A. P.
Sand	1,631.65	33	7 3	24	6 9
Lime	211.90	28	0 0	2	10 6
Soda ash	684.60	135	14 6	41	9 6
Nitre	65.20	306	12 0	8	14 6
Borax	32.60	304	5 0	4	8 0
Manganese	4.89	166	0 0	0	6 0
Other chemicals	8.15	480	0 0	1	15 0
	<u>2,635.399</u>			<u>84</u>	<u>5 6</u>

This shows that the loss on evaporation is 15 per cent.

Analysis of Gokak and Goa Sands.

	Gokak.	Goa.
Loss on ignition	0.6	0.1
Silica SiO ₂	92.3	97.6
Alumina	2.0	1.4
Ferrie oxide Fe ₂ O ₃	1.0	0.8
Lime	3.0	1.0
Magnesium	1.1	...
Other alkalies		
	<u>100</u>	<u>100.5</u>

(4) *Letter No. 268, dated the 27th January, 1932, from the Ogale Glass Works, Ltd., Ogalevadi.*

Referring to your letter No. 48 of 21st instant, we herewith return the record of our oral evidence duly corrected.

The rates of freight between Karad and Mangalore are now corrected on reference to our records; so also the value of clay going into the cost of one pot.

We also forward you herewith copies of additional representation (6 copies forwarded) which please place before the Board and oblige.

Enclosure.

Additional Representation, dated the 27th January, 1932.

1. The Native States, viz., the Aundh State, in the limits of which our factory is situated, is a small State and we pay customs duties to the Government of India on all commodities we import as any other glass factory situated in British India does. We, therefore, feel the same hardships as these other factories situated in British India do and are for all purposes of customs duties, competition with imported goods, etc., in the same boat as the glass factories in British India are.

It should also be noted that we are a firm registered in Bombay, i.e., British India under the Indian Companies Act, 1913, and our factories are located in a Native State for reasons of grant of land and loans on concessional basis.

2. It is possible to reduce the packing cost provided the Provincial Government goes to our help. For example, the Londa forest which is appreciably a large forest is very near to us, say, at a distance of about 150 miles. If this forest is exploited for purposes of making available to us good packing wood at a cheap cost it is possible to reduce the packing expense to a great extent.

With this view we had approached the Forest Department of the Bombay Government about six or seven years ago but the price quoted to us then was on a par with that of timber. It was not, therefore, possible to purchase packing plank at that cost. It is, however, understood that the Government of the United Provinces is helping the United Provinces Glass Works, Limited, by supplying them with packing planks at a cheap cost. If the same sort of help is rendered to us by the local Government our packing costs will be much reduced. A beginning in this direction will enable the local Government to help the other industries also in regard to their requirements of packing cases.

3. With regard to the system of railway freights we beg to invite the Board's attention to the method observed by railways in quoting very special rates from port to port. For example, there is a special rate of Rs. 1-5-5 per maund on lamps and lanterns from Shalimar to Madras, the distance being 1,030. This rate works out to be a little less than .25 per mile. The provision of such a rate enables a very free and smooth movement of the goods from one port to another according as the occasion demands. When on our approaching the railways for a similar rate between Karad and the various ports we have been refused the concession. In order, therefore, that the Indian Glass Industry may have the same facility which the imported goods is having it is essential that the manufacturing places be considered as ports and the utmost facilities as, for instance, shown by the instance in point, be accorded for carriage of the ware of the Indian glass manufacturers from their places of manufacture to the different ports.

It cannot be said how much protection in rupees, annas and pies such a concession is likely to extend us; but it will encourage us to place our ware in all port markets in competition with the imported goods.

The measure of protection.—In our reply to question 68 of the Board's questionnaire we have suggested a tariff of 60 per cent. From the reports appearing in the Journals of the Glass Technology of Sheffield it seems that the Russian Glass Industry is squeezing the Czechoslovakian people out of their field in Europe. When the fact that 90 per cent. of the production of hollowware in Gablonz—a town of glass manufacture in Czechoslovakia—is only for export is taken into consideration it seems most natural that when these Czechoslovakian people who have been in industry for generations past find that they are being pushed out of their fields in Europe by Russia and are losing their markets in India too owing to an increased production of similar ware in India they will resort to the policy of dumping their goods in the Indian markets so as to wipe out the Indian manufacturers. As a safeguard against such a danger some margin has to be kept

and we, therefore, suggest that a 100 per cent. import duty be levied on the imports of all glassware.

4. As the Board have seen for themselves here attempts have already been made at the manufacture of a variety of glassware here in India but owing to competition from abroad no encouragement has so far been received for the manufacture of the different articles on a mass production basis. In fact the expenses on the materials and labour spent on all these trials are in a way responsible for the apparently high cost of manufacture at our place. Such expenses could not be set aside from year to year as trial expense but had they not been made from time to time no idea could have been obtained as to the possibilities of the manufacture of the various articles in glass which are necessary for use in a civilized nation. All such attempts which have been done in the past but which owing to the small scale work and the unprotected condition of the Indian Glass Industry have been found to be discouraging will be repaid provided their imports are protected adequately so as to enable Indian glass manufacturers to take up to the manufacture of the different articles with a confidence.

To a common eye the period of 10 years would appear to be perhaps sufficient for protection. But the first five years would be absorbed in the reorganization of the industry and in order to enable it then to stand on its own legs a further protection for ten years is quite necessary. A period of 15 years is most essential.

OGALE GLASS WORKS, LTD.

B.—ORAL.

Evidence of Mr. S. P. OGALE and Mr. S. G. PAGHYE, recorded at Bombay, on Thursday, the 14th January, 1932.

President.—Gentlemen, you represent the Ogale Glass Works, Limited?

Mr. Ogale.—Yes.

President.—You are located in the Aundh State?

Mr. Ogale.—Yes.

President.—Are there any concessions which you have received from the State?

Mr. Padhye.—Yes; we are exempted from income-tax for 20 years. Then we have got lands on very favourable terms. When Mr. Ogale got his training at the Paisa Fund Glass Works in 1914 and came out of the institution, as a manufacturer he wanted funds, etc., to start with. He had no money but he wanted to start operations immediately and he found in the Chief of Aundh a man inclined to help Indian industries. The Chief gave about 14 acres of land without demanding a single pie in return on the condition that Mr. Ogale should pay him the cost of the land when he was able to do so. The land is situated very near the railway station.

President.—Has the cost of the land been paid?

Mr. Padhye.—Yes, when the company was registered as a Limited Company in 1920. Besides that the Chief of Aundh has helped us to the extent of a lakh of rupees.

Mr. Rahimtoola.—Was it by way of subscription or buying shares?

Mr. Padhye.—Buying shares and also loan whenever required.

President.—This loan is at a concession rate of interest?

Mr. Padhye.—Interest at the rate of 7½ per cent. and without our being required to execute any guarantees or deeds.

Mr. Rahimtoola.—Even the property of the glass works is not mortgaged to him?

Mr. Padhye.—No.

President.—I should like first to examine your statement of expenditure. The first point that I want to be clear about is whether this expenditure represents only the expenditure on the glass part of the works or whether it includes expenditure on the metal part of the works?

Mr. Padhye.—Expenditure on the glass works only.

President.—Do you keep separate accounts?

Mr. Padhye.—So far as the trading accounts are concerned we keep separate accounts.

President.—That is to say, so far as your raw materials are concerned you know precisely how much of it goes into the glass works and how much goes into the metal works? Take for instance coal?

Mr. Padhye.—The lantern part does not require any coal; we run it on coke.

President.—So that all the coke that you use is debited to the metal part of your works?

Mr. Padhye.—Yes.

President.—What about the establishment?

Mr. Padhye.—We have got two separate establishments.

President.—What about the standing item in works expenditure, "supervision and establishment"? That has got to be allocated?

Mr. Padhye.—Yes.

President.—Can you tell me approximately on what lines you have allocated them?

Mr. Padhye.—I have allocated them on the value of the production.

President.—As far as current repairs and maintenance are concerned probably there is no difficulty in determining the expenditure?

Mr. Padhye.—No.

President.—And the miscellaneous I suppose is allocated on the lines of supervision and establishment.

Mr. Padhye.—As regards advertisement we have got separate accounts; that is the main item under "Miscellaneous".

President.—What about selling expenses?

Mr. Padhye.—We have got separate account for commission payable on lantern sales and commission payable on glass sales.

President.—Suppose you sell a finished lantern with all the metal fittings, does the selling expense on that go into the metal works or glass works?

Mr. Padhye.—The metal works but the cost of the globe is debited to the lantern factory and we prepare a bill each month.

President.—If you incur, for example, a rupee as commission on a whole lantern with globe and the metal fittings, the whole of that commission is debited to your metal account?

Mr. Padhye.—Yes.

President.—So that as far as I can understand, your allocation is more or less right but possibly there is a slight shortage in the selling expenses which are debited to the glass works because the whole of the expenditure including the globe, will go into the metal works.

Mr. Padhye.—Yes.

President.—That is a small item and does not affect your allocation materially.

Mr. Padhye.—No.

President.—There are three items the variations of which strike me as interesting. The first is your selling expenses which I find have gone down considerably since 1926.

Mr. Padhye.—Yes.

President.—On an output of 148 tons your total selling expenditure was Rs. 14,130; on 168 tons it is Rs. 6,288. That is a very considerable reduction. Can you tell me approximately on what lines you achieved this economy.

Mr. Padhye.—In 1926 we were maintaining our salaried staff to sell the ware. When we found that the prices were going down and our realisations were dwindling, we wanted to cut out the expenses and the men who were on our selling staff were turned into commission agents and we began to pay them commission.

President.—That is the only source of economy?

Mr. Padhye.—The item "advertisements" has been included in the selling expense.

President.—And you don't advertise so much as you used to?

Mr. Padhye.—No. We were spending about Rs. 6,000 a year; now we are spending hardly a couple of thousands.

President.—The next reduction is in packing. How do you account for this reduction?

Mr. Padhye.—That is reduction in the consumption of packing material.

President.—How do you pack now?

Mr. Padhye.—Formerly we were paying Re. 1-1 per crate and now it is 13 annas.

President.—It is a wooden crate?

Mr. Padhye.—Yes.

President.—That is the main reduction?

Mr. Ogale.—Bamboo also is cheaper now-a-days.

President.—The item in regard to which there has been an increase of expenditure is power and fuel. It was Rs. 25,000 and odd in 1929 and it went up to Rs. 33,000. In 1930 there has been some reduction. I wish to point out with regard to your fuel expenditure that partly your high expenditure is the result of your location. You have got to pay very nearly Rs. 20 for your coal delivered at the works.

Mr. Padhye.—A little more than that.

President.—That increase is a matter for which location is entirely responsible, but I find also that your consumption is a little high. You make a general statement in one of your replies (answer to question 36) that while the consumption of coal in manufacturing one ton of melted glass is 1 ton of coal, the figure varies to five times that of the finished glassware in tons. Actually I was trying to work out your figure of coal consumption on the figures that you have given and I am inclined to think that it is considerably more than 5 tons of coal per ton of finished glass.

Mr. Padhye.—That item of power and fuel consists of three items. Power is about Rs. 1,800. That is debited to the coal account.

President.—When you say power, you generate it from coke?

Mr. Padhye.—Yes. We generate it in the lantern factory and sell it to the glass factory.

President.—These are the figures that you sent to the Government of India two or three years ago and there your power expenditure per ton of glass works out, I should say, on an average at about Rs. 35 per ton of glass. In your statement for 1924-26 power, including power for furnace upkeep, comes to Rs. 34.8 in one year, Rs. 42.14 in the second year and Rs. 34.4 in the third year per ton of glass. So that for purposes of rough calculation I take about Rs. 35 as your cost of power.

Mr. Padhye.—Yes.

President.—Can you tell me approximately, out of this expenditure of Rs. 28,872 what part of it represents the cost of power?

Mr. Padhye.—Rs. 1,800.

President.—Rs. 1,800 is the cost of power which you purchase from the lantern factory?

Mr. Padhye.—Yes.

President.—Therefore the cost of coal is Rs. 27,072?

Mr. Padhye.—Less Rs. 1,000 for wood fuel that we use for annealing purposes.

President.—Let us take that out: that gives you Rs. 26,072; that is the cost of coal?

Mr. Padhye.—Yes.

Mr. Ogale.—We have something like 20 per cent. of powder in this coal and when we say we burn one ton of coal per ton of glass we screen it before using it for melting the glass.

President.—While your coal as delivered at the works cost you Rs. 20, that figure plus 20 per cent. would be the cost of the effective part of the coal?

Mr. Padhye.—Yes: that will be Rs. 24 to 25.

Mr. Boag.—Taking it on the basis of effective coal it works out to about 6 tons.

Mr. Ogale.—Yes. That is practically the consumption of coal in all glass factories which work on pot furnaces.

President.—The favourable situation has nothing to do with the consumption of power.

Mr. Padhye.—I understand.

President.—It is only the cost of that you have taken into account.

Mr. Ogale.—Yes.

President.—The actual consumption of coal would be determined partly by the precise kinds of glassware that you make.

Mr. Ogale.—Pot breaking is the main thing. That takes a lot of fuel.

President.—A good deal of heat is being wasted.

Mr. Ogale.—The ready glass is also wasted. When a pot breaks, there is also a breakdown of the works.

President.—You tell me in one of your replies that it is possible for you to get your silica and your lime in the vicinity of your factory?

Mr. Ogale.—Yes.

President.—But actually you have not been able to raise any sand or lime near your factory?

Mr. Ogale.—Lime we are using already. Sand we are not using because there is some difficulty.

President.—What is the trouble?

Mr. Ogale.—We have a sand stone bed within 75 miles near Gokak. Beyond that we have another location of sand 150 miles off from our place in the Goa territory. But the suppliers are not supposed to be technical people and sometimes they send bad stuff. So everytime we have to go there and take our supplies which is not always possible.

President.—Actually now you are getting your sand from Allahabad?

Mr. Ogale.—From Bargarh.

President.—From the United Provinces?

Mr. Ogale.—Yes.

President.—That is costing you a great deal.

Mr. Ogale.—Yes. We tried to get sand from Derol on the Bombay, Baroda and Central India Railway.

President.—What is the distance?

Mr. Ogale.—300 miles from Bombay.

President.—At present you are getting it from 1,000 miles.

Mr. Ogale.—Yes.

President.—It is very important that you should reduce your cost of sand.

Mr. Ogale.—Yes.

President.—Rather than pay Rs. 32-15 per ton of sand, would it not be worth your while to undertake the exploitation of this sand stone deposit that you have 75 miles from your factory?

Mr. Ogale.—Yes. That requires a little machinery, disintegrators and other equipment for which we shall have to incur a small capital expenditure.

President.—Is that near a railway station?

Mr. Ogale.—3 miles off from the railway station.

President.—Supposing you are able to get sand from that area, your cost of sand at the works would be much less than half?

Mr. Ogale.—Yes. We require Rs. 3,400 worth of sand.

President.—The moment you increase your production and you are able to find markets further afield, then it looks to me the question of sand will become very important.

Mr. Ogale.—By that time we will be able to put in machinery. In the Goa sand we will have a nearer supply.

President.—Have you got the composition of Goa sand?

Mr. Ogale.—Yes.

President.—What do you call the place where you have the sand stone deposit?

Mr. Ogale.—Gokak.

President.—Have you got the analysis of that sand?

Mr. Ogale.—Yes.

President.—Would you mind sending us a note showing the analysis of the sand in the area 70 miles from you and also in the Goa territory?

Mr. Ogale.—Yes.

Mr. Boag.—Who made the analysis?

Mr. Ogale.—One American in Pittsburg analysed the Goa sand and we got a report on that. There is a large percentage of iron which could be separated. We shall have to make sufficient investment on that and we will be independent.

President.—Do you remember the iron content? What is the percentage of iron oxide in the sand?

Mr. Padhye.—2 per cent.

Mr. Ogale.—That could be separated mechanically.

President.—You don't include any railway freight either in your miscellaneous or in your selling expenses?

Mr. Ogale.—No.

President.—All railway freight is excluded I mean the freight on finished glass

Mr. Ogale.—No. Perhaps on small materials we might have included.

Mr. Padhye.—Our terms of delivery are always *ex-works* or *f.o.r.*

President.—I should like to get some idea of the extent of the market which is available at Karad. What I am thinking of is this. Although you are situated in an inland area, you are not so favourably situated with regard to markets as interior centres of production, say in the U. P., because after all you are only 200 miles from Bombay and when you sell into the Madras area you come in competition with the Madras port. Therefore between Bombay and Madras you are between the devil and the deep sea.

Mr. Padhye.—Yes.

President.—Actually what is the extent of the market measured in miles within which you have any freight advantage as compared with imported glassware?

Mr. Padhye.—500 to 600 miles from Karad.

President.—To the south east of Karad?

Mr. Ogale.—Yes.

President.—When you go to the south west, there are little ports on the west coast.

Mr. Ogale.—They are now made available to us from Marmagoa. We can send directly a shipment from Karad railway station to any part on that side on arrangements made with the Madras and Southern Mahratta Railway by the British Steam Navigation Company.

President.—Will you explain the arrangement?

Mr. Padhye.—For example I take the case of Mangalore. It costs us by rail Rs. 3-5-10 per maund from Karad to Mangalore.

President.—Throughout by the railway route?

Mr. Padhye.—Yes, but by rail and steamer route, it costs Rs. 1-5-6.

President.—What is the railway mileage from Karad to Marmagoa?

Mr. Ogale.—250 miles.

President.—What exactly is the concession rate that the Madras and Southern Mahratta Railway have allowed?

Mr. Ogale.—That is an arrangement made by the British Steam Navigation Company with the Madras and Southern Mahratta Railway.

President.—They charge you a consolidated rate?

Mr. Ogale.—Yes.

Mr. Padhye.—We get the railway receipt and send it to the party concerned. The party presents it at the office of the British Steam Navigation Company, and takes delivery of it. The British Steam Navigation Company also undertakes to collect the amount.

President.—That applies to all the ports on the west coast?

Mr. Padhye.—Yes, from Marmagoa down to Mangalore.

Mr. Boag.—Not south of Mangalore?

Mr. Padhye.—No.

President.—You don't get the benefit of that advantage to Cochin?

Mr. Padhye.—In that case we have to rail again from Mangalore to Cochin.

President.—Why don't they take the shipment straight to Cochin?

Mr. Padhye.—Their steamer doesn't go south of Mangalore.

President.—Who are the people that supply south? What about the Scindia Steam Navigation Company?

Mr. Padhye.—Their sailings are not regular.

President.—This advantage is confined to the area up to Mangalore?

Mr. Padhye.—Yes.

President.—You have got a fairly good market south of Mangalore?

Mr. Padhye.—We are selling a good lot in Calicut and Tellicherry.

President.—That is all sent by the railway route?

Mr. Padhye.—Yes and also by rail from Mangalore to Calicut.

President.—Apart from the concession from the British Steam Navigation Company, your natural market would be confined within about 500 to 600 miles?

Mr. Ogale.—Yes. Bangalore is a big market for us. In fact we are living by selling our goods in villages at a higher rate. Instead of going to the big markets or ports, we are now supplying all the village and taluk centres.

President.—Supposing it was decided to grant protection to the kinds of glassware that you make and you assume for the time being that sufficient protection is given considering the present condition of the market which is open to you, to what extent would you be able to raise your output? Is it possible to make a general statement?

Mr. Ogale.—We will be able to double our output at our own place, that is Karad. If protection is given we are likely to start some more factories in the southern part of the area.

President.—That would be more economical than doing the whole production at Karad?

Mr. Ogale.—Yes.

Mr. Padhye.—From that place we can supply that part of the country with our goods.

President.—Let us assume for the time being that you would be able to double your output at Karad, that is to say suppose you are able to make 350 tons?

Mr. Ogale.—At present we have doubled our production.

President.—In 1931 you were working up to 250 tons?

Mr. Ogale.—225 tons.

Mr. Padhye.—This again we want to increase.

President.—Supposing you are aiming at Karad to work up to 300 tons a year, what are the items under which you would be able to make a reduction in costs?

Mr. Ogale.—Sand.

President.—That does not depend on the output. It depends on whether you are able to exploit the sand deposits nearer your works.

Mr. Ogale.—We have arrived at certain conclusions. We only want to incur capital expenditure.

President.—I will make allowance for that separately. What I want to know is this: supposing your sand is bought at present rates, your coal at present rates and your materials at present rates, what are the items in the statement of expenditure on which you can bring about a reduction in costs simply as the result of doubling your output?

Mr. Ogale.—Supervision and office establishment.

President.—Your power and fuel will come down?

Mr. Ogale.—It will come down.

President.—Now you are working at the rate of 225 to 250 tons. What is your consumption now?

Mr. Ogale.—We can't say as we have not yet balanced the figures.

President.—When your furnaces are being fully worked, you ought to be able to tell us.

Mr. Ogale.—We change the method of burning the fuel.

President.—What do you mean?

Mr. Ogale.—Formerly we used to have 6 pot furnaces and we had to keep those pots very near the flame, but we have found out that we could keep our pots a bit away from the oven. Our pots are lasting longer and the losses due to the breaking up of pots are considerably less now-a-days. Formerly our pots were lasting only for 3 or 4 weeks and now they are lasting up to 90 days.

President.—When you get your pots away from the eyehole, then it would require heating for a longer time.

Mr. Ogale.—By adjusting the flues we have been able to do without heating it for a longer time.

President.—What exactly is the method on which you replace your pots? What is your present method?

Mr. Padhye.—If a pot accidentally breaks, we used to immediately replace it. Now-a-days we are trying to stop the furnace and again fire it afresh.

Mr. Ogale.—We find it more economical to change the pots after 3 months.

President.—Once in 3 months?

Mr. Padhye.—Yes, all the pots at one time.

President.—I understand. Now what about supervision? That must come down. If you doubled your output, your supervision and office establishment per ton of glass must come down.

Mr. Padhye.—Yes.

President.—Your current repairs and maintenance will come down.

Mr. Padhye.—Yes, but that is a small item.

President.—There won't be any difference in packing?

Mr. Ogale.—No.

President.—As a result of the increased output, there won't be any reduction in packing?

Mr. Ogale.—We are not getting our planks from a distant place like Cochin where we can get the cheaper materials. The unit being small, we can't get any concession, but if we double the output and get much more materials, we are likely to get a concession.

President.—Your packing is a fairly big item which might make a considerable difference.

Mr. Ogale.—Yes. Packing expenses could be brought down considerably if Londa forest is exploited and packing material therefrom is made available by Government to the Industry. The Londa forest is only at a distance of 150 miles from us.

President.—Then of course miscellaneous expenses would come down?

Mr. Ogale.—Yes.

Mr. Padhye.—Printing, stationery and other things will come down.

President.—The way I look at your general position from the point of view of costs is this: taking simply the 1930 figures, your cost per ton of glass is Rs. 646. That is per ton of finished glass?

Mr. Ogale.—Yes.

President.—Taking about 40 gross of lantern globes to a ton, this is almost exactly Rs. 16 a gross, is not that so?

Mr. Ogale.—Yes.

President.—I understand from figures that you have supplied elsewhere that the price that you now realise is Rs. 16-8. Therefore you get a price which simply covers your working expenses.

Mr. Ogale.—Exactly.

President.—Nothing for depreciation and nothing for profit?

Mr. Ogale.—No. For the last 4 or 5 years we have not set aside any thing for depreciation.

President.—Does this price of Rs. 16-8 represent your net realisation?

Mr. Padhye.—No. That is the price we actually charge to the customer. Overhead expenses have to be met out of that.

President.—Which are the expenses that you have to meet out of that?

Mr. Padhye.—Supervision, office establishment and current repairs.

President.—Are all the items which are mentioned in the Statement of expenditure represented by Rs. 16-8?

Mr. Ogale.—Yes.

President.—So that Rs. 16-8 may be taken as representing the total works expenditure?

Mr. Ogale.—Yes.

President.—It does not include any freight?

Mr. Ogale.—No.

President.—That is the position at present?

Mr. Ogale.—Yes.

President.—You cannot meet your depreciation or profit?

Mr. Ogale.—No.

President.—What is your current realised price?

Mr. Padhye.—Rs. 15.

Mr. Ogale.—It is much less than Rs. 16-8.

President.—The duty has gone up since 1931. The exchange has moved in our favour since 1931. Still the result is that your prices have gone down from Rs. 16-8 to Rs. 15. What is the reason?

Mr. Ogale.—Internal competition.

President.—In your market area are you exposed to internal competition?

Mr. Ogale.—Yes, now-a-days.

President.—I suppose people like the Upper India Glass Works are selling in your area?

Mr. Ogale.—They are coming down south up to Cochin.

Mr. Padhye.—They are able to come down as far as Ernakulam because they have obtained freight concession from their own railways. For example, the East Indian Railway carry their goods at 2nd class rate.

President.—In any case they give station to station rate?

Mr. Padhye.—Yes.

President.—Do you get any station to station rate?

Mr. Ogale.—No. We have only one rate to Madras.

President.—That is from Karad to Madras?

Mr. Ogale.—Yes.

Mr. Padhye.—The Madras and Southern Mahratta Railway are charging us 4th class rate.

President.—And at owners' risk?

Mr. Padhye.—Yes. Other people are getting concession rates from their railways. When we asked those railways to give us similar concessions, they wrote and asked us what concessions we were getting from our home railway. We had to tell them that the Madras and Southern Mahratta Railway were charging us 4th class rate and the result was that they would not extend to us similar concessions which they were giving to other glass factories on their own lines.

President.—That is an anomalous position?

Mr. Padhye.—Quite.

President.—Am I right in thinking that with the exception of this station to station rate from Karad to Madras, all the other freights that you pay are calculated at 4th class rate?

Mr. Padhye.—Yes.

President.—That is somewhere about '68 pie.

Mr. Ogale.—It is '62 pie.

President.—So that if you send goods from Karad northwards towards Bombay you come in competition not merely with imported goods landed at Bombay which do not bear any freight but also with glassware landed in Bombay or near Bombay from factories upcountry in the north which come at concession freight rates?

Mr. Ogale.—Yes. Besides the position is like this. The Bombay, Baroda and Central India are giving second class rates and the goods from factories in the north come to Bombay by Bombay, Baroda and Central India. We are on the Madras and Southern Mahratta Railway which do not give any concession.

President.—All because the Madras and Southern Mahratta Railway do not move in the matter?

Mr. Ogale.—Yes. Supposing I want to send to Baroda, I have to pay 4th class rate.

President.—Therefore the position is that while your location is too near the two great ports of Bombay and Madras, in addition to that, in the matter of railway freights you are unfavourably situated in relation to Indian glass factories located elsewhere?

Mr. Ogale.—Yes. The second disadvantage is an artificial one. It can be remedied easily because it is only in the hands of a few authorities.

President.—Will you please look at your answer to Question 5 where you give a list of the kinds of glassware you make? Can you tell me what portion of your total output is represented by chimneys and globes?

Mr. Padhye.—In 1928 we manufactured 6½ tons of other classes of glassware, pressed ware, etc.

Mr. Boag.—That is to say 176 tons of globes?

Mr. Padhye.—Yes. In 1929, we made 7½ tons and in 1930, 22 tons of other wares.

President.—So that on the 1930 output 145 tons out of 168 tons represented globes?

Mr. Ogale.—Yes, in globes and chimneys you have to make this difference. We don't make much of Dietz globes. They fetch a lower price and consume more glass. So, we are making small chimneys.

President.—That was the point I was thinking of when I was considering your total expenditure. Your expenditure of about Rs. 646 per ton of finished glass is a fairly high figure. Now a good deal of that is due to circumstances over which you have no control—I mean your location with regard to coal, your location with regard to sand and so on. But I am right in thinking that part of that high cost is due to the fact that you are making classes of glassware which are probably a little more expensive to make?

Mr. Padhye.—I don't understand the question.

President.—Supposing the whole of your output consisted of phials, then your total expenditure per ton of finished glass would be lower?

Mr. Padhye.—A little lower.

President.—If, on the other hand, the whole of your output consisted of Dietz globes, then your expenditure would be lower than it is now?

Mr. Ogale.—Yes.

President.—If you are making chimneys of a special kind and you are extending your production in the direction of articles such as pressed glassware, obviously that would be reflected in the cost of your finished glassware, so that to some extent the high proportion of your expenditure is to be accounted for on that ground?

Mr. Padhye.—It is also due to experimenting.

President.—You were present when Mr. Varshnei and Rai Sahib Narayan Tandon were examined. You remember the point that I discussed with them. You are making increased quantities of pressed glassware and I should like to get some idea of the increase in cost which should be required for pressed glassware as compared with Dietz lantern globes. Supposing for example it costs you let us say Rs. 10 to make a gross of Dietz lantern globes and supposing you are making a certain quantity of pressed glassware corresponding in weight to a gross of Dietz globes, can you tell me approximately what difference in expenditure that would make?

Mr. Padhye.—If I correctly understand the question, you want me to give you the cost price, say, of one lb. of pressedware as compared with one lb. of plainware, both finished. I should say that the cost is 3 to 4.

President.—Which is 3?

Mr. Padhye.—Finished pressware is 3 and finished plainware 4.

President.—The cost of finished pressedware is less?

Mr. Padhye.—Yes, because there is no breakage. On the other hand the finished pressedware will fetch me a better price.

President.—Before you go on to the price I want to know how you have calculated this proportion of 3 to 4. It is entirely a question of wastage?

Mr. Padhye.—Yes.

President.—What kind of pressed glassware are you taking?

Mr. Padhye.—Tiles.

President.—Which represent probably the largest item in your pressed glassware?

Mr. Padhye.—Yes and also they have a good sale.

President.—You can make pressed tiles with practically the same batch composition, can you?

Mr. Padhye.—With a little variation.

President.—That is entirely negligible?

Mr. Ogale.—We use Goa side sand for that.

Mr. Padhye.—Inferior sand can be used for making pressed glassware.

President.—Because you can afford to give a slightly bluish tinge to it?

Mr. Padhye.—Yes.

Mr. Ogale.—They require sky colour.

President.—What is the difference in wastage actually? In globes you take it at 25 per cent., don't you?

Mr. Padhye.—Our figure is $45+10=55$ per cent.

President.—Supposing you make 100 tons of melted glass, you get only 45 tons of globes?

Mr. Ogale.—45 tons of salable globes.

President.—If you make 100 tons of melted glass, how many tons of pressed glassware can you make?

Mr. Padhye.—70 to 80 tons.

President.—So that with all your expenses on sand and coal, it makes a lot of difference.

Mr. Padhye.—That is what I say.

President.—They are using a lot of glass tiles in South India.

Mr. Padhye.—There is a heavy of import tiles from France and Belgium.

President.—Under what heading is this item imported?

Mr. Boag.—It must come under "Other kinds of glass".

President.—It is a very comprehensive heading—"Other kinds of glassware." Does it chiefly come from France?

Mr. Padhye.—France, Belgium and also Germany.

President.—Wherever you sell these glass tiles you are up against competition from Continental countries? ...

Mr. Padhye.—Yes. Even in Bombay they sell a good lot.

Mr. Ogale.—The point to be remembered in this connection is that we have to quote competitive rates in order to sell.

Mr. Boag.—What price do these imported tiles fetch?

Mr. Padhye.—Rs. 15 or Rs. 14 per dozen.

President.—You were going to tell us about the prices of these two kinds of glassware when I interrupted you. How does that work?

Mr. Padhye.—The pressed article is sure to fetch me at least Rs. 4 more.

President.—What is the unit on the basis of which you calculate that?

Mr. Ogale.—The glass required to make one dozen tiles will make one gross of lantern globes.

President.—What do you get for one dozen tiles?

Mr. Padhye.—Rs. 18 to 19 f.o.r. Karad.

President.—What do you get for Dietz globes?

Mr. Padhye.—Rs. 15

President.—While it costs you less to make tiles, you get a better price for them?

Mr. Padhye.—Yes.

President.—That rather upsets our calculations.

Mr. Ogale.—We cannot have recourse to mass production on that item.

President.—That is the point. Since you are making only 20 to 25 tons of pressed glassware, we cannot take the cost as being representative of pressed glassware made on the scale on which you make globes?

Mr. Ogale.—That is quite true.

President.—If I take lantern globes, out of 100 tons of melted glass I get 45 tons of Dietz globes, therefore 55 is the loss: from the point of view of finished glass this 55 tons is washed out.

Mr. Varshnei.—Yes.

President.—Let us take it as practically cullet; am I right?

Mr. Varshnei.—Yes.

President.—The whole of that can come back into the furnace?

Mr. Varshnei.—Yes; it fetches somewhere about one-fourth the price. You can get cullet very cheap in the market.

President.—The point is in fixing the price with which you can credit yourself for the cullet you have got to take the current market price of broken glass.

Mr. Ogale.—It is Re. 1 per maund.

President.—Near Bombay and near Calcutta you will get broken glass pretty cheap?

Mr. Ogale.—Yes.

President.—The whole of that cullet valued at the current market price might be credited to the factory. What is the difference as regards that point in regard to pressed glassware. Out of 100 tons you get 80 tons: what happens to the balance of 20 tons?

Mr. Padhye.—That is not good; we reject it.

President.—So that that does not materially affect the calculation because in both cases if the wastage is in the proportion of 55 : 20 and the price that the wastage might be credited with is the same in both cases then it does not materially affect the calculation.

Mr. Padhye.—That is so.

President.—Coming back to this question of prices, would you accept the assumption that if pressed tiles were made on more or less the same scale as you are making Dietz globes, your cost of production of tiles would be considerably less?

Mr. Padhye.—Yes.

President.—But you would get a price of Rs. 19 all the same?

Mr. Padhye.—I want to correct that. The price will be a little lower because we spend a lot of money on packing.

President.—Out of the realised price of Rs. 19 a certain portion has to be taken off for packing?

Mr. Padhye.—Yes. That would be about Rs. 3. Our rate f.o.r. Karad is always a little more than what is available f.o.r. Bombay.

President.—I was asking you about your realised price at the factory of the globes and you give that as Rs. 16-8-0 in 1930. Is that comparable with f.o.r. Bombay price or have you got to make any deduction?

Mr. Padhye.—No.

President.—It is only with regard to tiles that the question arises?

Mr. Padhye.—Yes.

President.—So that, even making allowance for the packing expenses you are able to make your tiles at a slightly lesser cost than globes. In spite of that you are getting more or less the same price.

Mr. Padhye.—Yes.

President.—So that it is more profitable for you to make pressed tiles?

Mr. Ogale.—Yes, but we cannot change our plant at once. If tiles are made on a big scale that would be economical. If protection is given we can increase our production and put in another plant.

President.—I may tell you in regard to these prices, that since you are selling in small quantities your realised price is not a correct indication of the current price of tiles. Can you get me the ruling price for glass tiles, say in the Bombay market?

Mr. Padhye.—I will have to enquire and find that out.

President.—Generally am I right in thinking, on the figures that you have given us, that if on consideration we decided to grant protection for pressed glassware, the *ad valorem* duty which we fixed for blown ware would more or less be applicable to pressed ware?

Mr. Padhye.—Yes.

President.—It would be generally a correct assumption; that is to say globes and bottles and phials all these coming under the general heading of blown ware would bear the same rate of duty as all classes of pressed ware?

Mr. Padhye.—Yes.

President.—That is the scheme you suggest?

Mr. Padhye.—Yes.

President.—I want to raise a few points in connection with these replies that you have sent us. Look at question 4. You give your present capacity as 3 tons of glass per day.

Mr. Padhye.—Yes.

President.—Is that finished glass?

Mr. Padhye.—It is in terms of melted glass.

President.—How many days do you take as working days in the year?

Mr. Ogale.—About 300 days.

President.—That gives you 900 tons of melted glass?

Mr. Ogale.—Yes.

President.—I suppose actually that would mean in your case about 500 tons of finished glass?

Mr. Padhye.—400 tons.

President.—That is why you said that the utmost extent to which you can increase your capacity is to double it. You can't go beyond that?

Mr. Padhye.—We can't, unless we overhaul the plant.

Mr. Boag.—You can't reduce the percentage of wastage?

Mr. Padhye.—We don't think there is much room for reduction in wastage, though some slight reduction may happen.

President.—You have been hearing the replies given by other manufacturers as regards the difference in the price realised by Indian manufacturers as compared to import prices?

Mr. Padhye.—Yes. Indian goods fetch a lower price than what is obtainable for imported ware.

President.—If you take, for example, the price for globes that you are realising at present, that is about Rs. 15, I suppose imported globes would fetch about Rs. 18 to Rs. 20?

Mr. Padhye.—Yes.

President.—And you are perfectly certain, as far as you are concerned, that this difference has nothing to do with the quality or appearance of the article?

Mr. Padhye.—Yes.

President.—You think it is almost entirely a question of prejudice which is not connected with the actual quality of the glass, and partly also recently the result of internal competition?

Mr. Padhye.—That is so.

President.—If I go to the bazar and I say "I want a really good lantern globe" and like the ordinary Indian customer say "imported goods are better and therefore I am prepared to pay about Rs. 16 per gross of imported globes, but if I can get it sufficiently cheap I am prepared to buy an Indian globe"; then, you see, three manufacturers turn up and one says "here is mine for Rs. 11, another says here is mine for Rs. 9" and so on and therefore while the imported goods may remain at Rs. 12 per gross Indian prices would go down below Rs. 12.

Mr. Padhye.—When we go to the bazar, we have three qualities and we say 'Prabhakar' is the best and as we always keep up to that quality it sells as the best.

President.—I think that is because you have been selling that particular brand for some years in the market; it has got a certain hold in the market.

Mr. Padhye.—It is because we have always maintained the quality.

President.—Your point is that internal competition is not likely to affect the particular brand that you are selling and that it has nothing to do with the price if the quality is maintained?

Mr. Padhye.—Yes, and you must have good propaganda.

President.—The quantities of material that you give in your answer to question 12, are those quantities based on the present output?

Mr. Padhye.—Yes.

President.—How many parts of glass do the parts of materials represent?

Mr. Padhye.—I will give you the figures later.

President.—If you look at question 18 what kind of soda ash do you generally use?

Mr. Padhye.—Magadi ash.

President.—That is quite good for your purpose?

Mr. Padhye.—Yes.

President.—All your expenditure in this total expenditure statement is shown in terms of Magadi ash?

Mr. Padhye.—Yes.

Mr. Ogale.—In this connection may I suggest that a rebate may be granted on soda ash?

President.—You mean the duty?

Mr. Ogale.—On the 25 per cent. duty.

President.—That is simply a question of adjusting either at the price end or at the materials end. Usually the way in which we fix the rate of protection is to take into account all the costs, cost of materials, power and various other things; then we make a reasonable allowance for depreciation and profit and we take that as the fair selling price. Then we take the current import price and fix that as the measure of protection. Supposing the cost of soda ash is taken in this estimate of cost at a price corresponding to c.i.f. plus a duty of 25 per cent. then it is unnecessary to make further adjustments.

Mr. Padhye.—Yes.

President.—In considering your costs from the point of view of fixing the measure of protection, it is of course necessary to bear in mind that the freight on coal has been increased, which in your case would amount to Rs. 2-8-0 a ton.

Mr. Padhye.—More than that.

Mr. Ogale.—Suppose a man is at a short distance from the coalfields he pays only Rs. 5 or something of that sort while here we have to pay Rs. 15 for the coal and a surcharge in proportion to the higher figure.

President.—If the surcharge, for example, were fixed in terms of a specific rate instead of a proportionate charge it would be advantageous for you. It is rather difficult to fix a surcharge as a sort of average of the charges which have to be met by factories all over the country.

Mr. Padhye.—They could have charged per ton.

President.—They can calculate it per ton but they must calculate it according to the distance too. That is where the whole trouble comes.

Mr. Padhye.—People who are far away from coalfields are harder hit than those that are near the coalfields.

President.—That is perfectly true. You pay Rs. 2-8-0 per ton more while the Calcutta man pays practically nothing?

Mr. Padhye.—Yes. People on the Calcutta side are already getting coal cheaper in comparison to us and at the same time not paying any taxes, while we pay more for our coal and also pay tax: that is our point.

Mr. Rahimtoola.—In answer to question 2 you say the *ex-officio* Director forms part of the superior management.

Mr. Padhye.—Quite.

Mr. Rahimtoola.—I am not able to follow exactly what you mean by that.

Mr. Padhye.—Mr. Ogale who is present here is the *ex-officio* Director.

Mr. Rahimtoola.—He is the only man in the superior management?

Mr. Padhye.—I don't follow exactly your question.

Mr. Rahimtoola.—You say all your superior management is Indian and then you go on to say that there are 7 Directors and the *ex-officio* Director forms part of the superior management.

Mr. Padhye.—He is the General Manager.

Mr. Rahimtoola.—How many Indians are in the superior management?

Mr. Padhye.—The Manager is an Indian and the foreman is an Indian.

Mr. Rahimtoola.—The foreman is not a superior man.

Mr. Padhye.—Engineers are also Indians.

Mr. Rahimtoola.—How many are they?

Mr. Padhye.—One Engineer.

Mr. Rahimtoola.—And one General Manager which means two persons form superior management?

Mr. Padhye.—All are Indians.

Mr. Rahimtoola.—How many are they?

Mr. Ogale.—Four.

Mr. Rahimtoola.—You gave us to understand that it was due to the kindness of the Chief Sahib that you are able to get very good and favourable concessions and you said you are exempted from income-tax. What income-tax do you mean?

Mr. Ogale.—State income-tax.

Mr. Rahimtoola.—State charges income-tax on the goods that go out?

Mr. Ogale.—Income-tax on the profits of the Company.

Mr. Padhye.—There is no tax on the goods coming in or going out.

Mr. Rahimtoola.—They don't charge anything on the goods coming in or going out?

Mr. Padhye.—No.

Mr. Rahimtoola.—When the State subscribed a lakh of rupees by way of share capital and is giving you loans on easy terms or at reasonable interest, do they have any say in the management directly or indirectly?

Mr. Ogale.—No.

Mr. Rahimtoola.—Have they got anybody on the Directorate?

Mr. Ogale.—One of the Directors is also on the State's Bank and thus represents them.

Mr. Rahimtoola.—In answer to question 6 (b) you say in the vicinity you have silica and lime, but you are not able to get it.

Mr. Ogale.—We are now getting lime.

Mr. Rahimtoola.—You were telling us that you intended making arrangements if protection was granted.

Mr. Ogale.—Yes, I would buy one disintegrator and another magnetic separator.

Mr. Rahimtoola.—Is that under the proposed extension?

Mr. Ogale.—Yes.

Mr. Rahimtoola.—That means provided protection is given you will be able to get your sand cheaper than what you are getting at present?

Mr. Ogale.—Yes.

Mr. Rahimtoola.—In answer to question 6 (d) you say that this place enjoys the advantages of a very healthy and temperate climate. I suppose this is a sort of a reply to one of the arguments put forward by those who oppose protection that humidity is a question which affects the Indian industry.

Mr. Padhye.—Yes.

Mr. Rahimtoola.—And you want to say that it doesn't. As far as your place is concerned; it is advantageously situated in that respect?

Mr. Padhye.—Yes.

Mr. Rahimtoola.—I would like to know whether you have any information or knowledge that humidity does affect the manufacture.

Mr. Padhye.—I have no information.

Mr. Rahimtoola.—You generate your own power.

Mr. Padhye.—Yes.

Mr. Rahimtoola.—I suppose it doesn't cost you anything extra. I mean whether it costs you more by having your installation as against getting power from an Electric Company if there is one at your place.

Mr. Padhye.—No.

Mr. Rahimtoola.—You say that there is no power and therefore you have got to generate.

Mr. Padhye.—Karad is not a big town and there is no electric supply.

Mr. Rahimtoola.—In answer to question 8 you say that you are producing your goods about equal to the quality of the imported glassware. I would like to know what quality of glassware is coming into India.

Mr. Padhye.—Blown ware.

Mr. Rahimtoola.—If you had followed the reply to one of the questions the other day, Mr. Varshnei said that sheet glass of 4th class only comes into India.

Mr. Boag.—That was in the case of sheets.

Mr. Rahimtoola.—I want to know whether it is so in your case.

Mr. Padhye.—No.

Mr. Rahimtoola.—Later on you say "But the opinion that the Indian glassware is as good as the imported one in point of quality is gaining ground." I want to know whether this is due entirely to your own propaganda.

Mr. Padhye.—Not our own propaganda. That is the impression that is gaining ground in favour of the Indian glassware.

Mr. Rahimtoola.—Is it due to the quality that they have tried and found out?

Mr. Padhye.—Yes, by actual use.

Mr. Rahimtoola.—The opinion that we got here when we were taking evidence was that the prejudice was so great that some of the dealers had to say that the Indian goods were also imported goods.

Mr. Padhye.—That was quite right earlier.

Mr. Rahimtoola.—It is not so now?

Mr. Padhye.—No, not to that degree which existed before.

Mr. Rahimtoola.—You are able to sell fairly well your own goods and under your own name?

Mr. Padhye.—Yes.

Mr. Rahimtoola.—In answer to question 18, I suppose you have not used the other brand of soda. I am talking of crescent brand.

Mr. Padhye.—We have used both.

Mr. Rahimtoola.—You have used both and you have found by experience that Magadi soda ash is less expensive and serves the same purpose?

Mr. Padhye.—Yes. There is variation in colour superficially.

Mr. Rahimtoola.—It does not affect the goods to the slightest extent?

Mr. Padhye.—No.

Mr. Rahimtoola.—What about Dhrangadhra soda ash?

Mr. Padhye.—We used it twice and it is quite satisfactory.

Mr. Rahimtoola.—Why did you give up using it?

Mr. Padhye.—Because of the question of railway freight from Dhrangadhra to Karad. We had to compare the price delivered at our own place and as it did not lead to any economy, we could not continue to use it.

Mr. Rahimtoola.—You gave it up on account of price?

Mr. Padhye.—Yes.

Mr. Rahimtoola.—Even before the factory closed down?

Mr. Padhye.—Yes.

Mr. Rahimtoola.—In answer to question 33 about freight, I don't understand when you say that it should therefore be the lookout of the State that the rate of railway freight on coal should be reduced.

Mr. Padhye.—It should be reduced in the case of glass.

Mr. Rahimtoola.—It should be the lookout of the State?

Mr. Padhye.—That means Government or the Railway Board should ask the railways to reduce the railway freight for glass factories.

Mr. Rahimtoola.—It means the Government of India and not the Native State?

Mr. Padhye.—I am not talking of the Native State.

Mr. Rahimtoola.—Is it the lookout of the Government of India or is it your business that the freight rates should be reduced?

Mr. Padhye.—It is not our business to see.

Mr. Rahimtoola.—Is it not to your advantage to see that the freight is reduced?

Mr. Padhye.—Of course it is.

Mr. Rahimtoola.—Is it then the lookout of the State?

Mr. Padhye.—It is lookout of the State. Government should have done so.

Mr. Rahimtoola.—It is your duty to try and see that you get the reduction rather than it is the duty of the State.

Mr. Padhye.—I follow.

Mr. Rahimtoola.—It is to your advantage to fight for it.

Mr. Padhye.—As we have already applied to Government, we think that this Board should recommend to Government.

Mr. Rahimtoola.—In answer to question 43 you have made an estimate of 50 lakhs as the total production of glass.

Mr. Padhye.—It is a rough estimate.

Mr. Rahimtoola.—What articles do you mean?

Mr. Padhye.—All articles made in India of glass.

Mr. Rahimtoola.—Including bangles?

Mr. Padhye.—Yes.

Mr. Rahimtoola.—You say the total production in India of all the factories together is 50 lakhs?

Mr. Padhye.—About that.

Mr. Rahimtoola.—Is it at present 50 lakhs? Have you seen the Trade Returns of 1931?

Mr. Padhye.—I have not seen.

Mr. Rahimtoola.—The Trade Returns show Rs. 1.64 lakhs for 1930-31 as against Rs. 2.51 lakhs for 1929-30. Do you mean that this Rs. 50 lakhs might refer to 1928-29?

Mr. Padhye.—About a year or two back.

Mr. Rahimtoola.—You have said that you carry your goods half by rail and half by ship which is more economical than throughout by rail. Do you find any difficulty in getting ships? Ships are always available.

Mr. Padhye.—The Steamship Company makes its own arrangements with the railway Companies.

Mr. Rahimtoola.—You book it at the railway station?

Mr. Padhye.—Yes, we get the railway receipt which we send on to the party and he presents it at the Steamship Company's Office.

Mr. Rahimtoola.—The Steamship Company makes arrangements with the railways?

Mr. Padhye.—Yes.

Mr. Rahimtoola.—You have not got to make it?

Mr. Padhye.—No.

Mr. Rahimtoola.—In answer to question 51 you say that some of your goods have been bought by Government. May I know whether you have got any letter of appreciation from Government whether they are satisfied with your goods in respect of quality, appearance, size and so on?

Mr. Padhye.—They are satisfied.

Mr. Rahimtoola.—Indian goods stand a fair comparison with the imported goods?

Mr. Padhye.—Yes.

Mr. Rahimtoola.—What did you supply?

Mr. Padhye.—Lanterns, globes, paper weights and ink-stands.

Mr. Rahimtoola.—I suppose as regards the selling expenses that you have shown here, it is the selling expenses of all articles manufactured by your factory except the globes.

Mr. Padhye.—Yes, except lanterns.

Mr. Rahimtoola.—That goes to the other factory and the selling expenses of the globe is charged.

Mr. Padhye.—Yes.

Mr. Rahimtoola.—In answer to question 58, you say that the interest charged is 9 per cent. Are these loans other than the State loans?

Mr. Padhye.—Yes.

Mr. Rahimtoola.—On the loans advanced by the State you get a favourable rate?

Mr. Padhye.—Yes.

Mr. Rahimtoola.—You don't get sufficient amount from the State?

Mr. Padhye.—No.

Mr. Rahimtoola.—That is the reason for your borrowing from elsewhere?

Mr. Padhye.—Yes.

Mr. Rahimtoola.—In answer to question 62 you say that no correct data is available about the percentage of wastage. I suppose the figures that you have supplied now are more or less correct?

Mr. Padhye.—We don't keep statements of breakages, etc.

Mr. Rahimtoola.—We want to find out what exactly is the percentage of breakage and I suppose the figures that you have given are correct. Is there any likelihood of the reduction taking place in future by any method of handling?

Mr. Padhye.—Yes.

Mr. Rahimtoola.—What reduction do you expect?

Mr. Padhye.—5 to 10 per cent.

Mr. Rahimtoola.—Instead of 45 per cent. finished goods, you might get 50 or 55?

Mr. Padhye.—Yes.

Mr. Rahimtoola.—As regards your proposal for protection, in answer to question 68, you say an import duty of Rs. 60 and the duty should remain for 15 years.

Mr. Padhye.—It should be 60 per cent. duty.

Mr. Rahimtoola.—Do you think that such a long period of 15 years is necessary for the industry?

Mr. Padhye.—Yes.

Mr. Boag.—In your Statement of expenditure, do the figures that you show against materials (first four items) represent the value of materials actually used?

Mr. Padhye.—Yes, they represent the value of materials actually used.

Mr. Boag.—In that case, can you explain the large variation in the value of refractory materials used from year to year? In 1929, the value was only Rs. 1,000 whereas in other years it has varied from Rs. 2,600 to Rs. 5,000.

Mr. Padhye.—It is due to the manufacture of crucibles in our own factory and getting clay from Castle Rock—a distance of about 150 miles. Formerly we used to get clay from Jubbulpore.

Mr. Boag.—How does the clay you get from Earth Rock compare with Jubbulpore clay?

Mr. Ogale.—For bricks and blocks it is all right. For pots it is not all right.

Mr. Padhye.—So for pots we get clay from Jubbulpore.

Mr. Boag.—With regard to your reply to Question 22, what is your estimate of cost of making pots? Have you formed any estimate of the cost?

Mr. Ogale.—Rs. 35 to 40 per pot.

Mr. Boag.—What is the value of clay?

Mr. Ogale.—Rs. 12 to 15.

Mr. Boag.—Are all your pots of the same capacity? Are they all 600 lb. pots?

Mr. Ogale.—We are now using pots of 800 lbs. capacity.

Mr. Boag.—How many furnaces have you got?

Mr. Ogale.—Two.

Mr. Boag.—How many pots have you in each furnace?

Mr. Ogale.—6 and 5. Last month we had 6 and 4 and now 6 and 5.

Mr. Boag.—How many of these 11 pots have a capacity of 800 lbs.?

Mr. Ogale.—All.

Mr. Boag.—You are not using any of 600 lbs. capacity?

Mr. Padhye.—No.

Mr. Boag.—When did you make this change?

Mr. Ogale.—Since January, 1932.

Mr. Boag.—Within the last fortnight?

Mr. Ogale.—Yes.

President.—Since the visit of the Tariff Board?

Mr. Ogale.—Yes.

Mr. Boag.—Is your Company a public company?

Mr. Ogale.—Yes.

Mr. Boag.—Do you publish balance sheets?

Mr. Ogale.—Yes.

Mr. Boag.—Can you let us have copies of your balance sheets?

Mr. Padhye.—Yes. May I know for how many years you want?

Mr. Boag.—For the last 3 or 4 years?

Mr. Padhye.—Yes, I shall send you.

Mr. Boag.—In your answer to Question 67, you give the amount of share capital. I presume that that represents the capital expended both on the glass works and on the lantern works?

Mr. Ogale.—Yes.

Mr. Boag.—That is sufficiently accurate to work upon?

Mr. Padhye.—Yes.

Mr. Boag.—Those figures in your answer to Question 54 roughly correspond to the amount of the paid up share capital—a little over Rs. 4½ lakhs?

Mr. Padhye.—It is Rs. 4½ lakhs.

Mr. Boag.—What is the amount of outstanding loan shewn in your last balance sheet?

Mr. Ogale.—Rs. 55,000.

Mr. Boag.—How much of that is borrowed from the State?

Mr. Ogale.—About Rs. 20,000.

Mr. Boag.—In your answer to Question 30, you say that “your total wages paid in the year 1930 were Rs. 20,000 approximately. The total number of workmen were about 125. The average rate of wages was Rs. 40—50 to the skilled labour and Rs. 15—20 to the unskilled.” If you divide Rs. 20,000 by 125, it only works out to Rs. 160 a year which gives an average monthly pay of Rs. 13?

Mr. Padhye.—There are a few boys working in the factory.

Mr. Boag.—What is your proportion of unskilled to skilled labour? Of your 125 men, how many do you class as skilled and how many as unskilled?

Mr. Padhye.—The number of skilled hands in 1930 was 58, unskilled 45 and technical 3.

Mr. Boag.—Are all these men employed throughout the year?

Mr. Padhye.—Yes.

Mr. Boag.—And they are paid monthly wages?

Mr. Padhye.—Yes.

Mr. Boag.—You don't pay any of your labour by piece work?

Mr. Padhye.—No.

Mr. Ogale.—Except on rare occasions, we don't pay any of our labour by piece work.

President.—I think probably your assumption is that unskilled labour is not employed right through the year. You keep your skilled labour right through the year, but the amount of unskilled labour that you employ must vary from time to time according to the work?

Mr. Padhye.—Yes.

Mr. Boag.—You say that you have got 58 skilled men. The average rate of wages per man is Rs. 40 to Rs. 50?

Mr. Padhye.—Rs. 40 to Rs. 50 is the highest wage paid to the blower, but the blower is assisted by 5 or 6 skilled people whose wages vary from Rs. 20 to Rs. 30.

Mr. Boag.—How many men get Rs. 40 to Rs. 50?

Mr. Padhye.—About a dozen people.

Mr. Boag.—And the rest get Rs. 15 to Rs. 20?

Mr. Ogale.—The average will be Rs. 25.

Mr. Boag.—If you keep these men throughout the year and pay them, it will come to much more than Rs. 20,000 even if you do not make any allowance for skilled labour?

Mr. Padhye.—There might be a little variation.

Mr. Boag.—You say that you have automatic and semi-automatic machines?

Mr. Padhye.—We have only one semi-automatic machine.

Mr. Boag.—What is that semi-automatic machine used for?

Mr. Padhye.—It is the blowing machine on which are made jars and gloy bottles.

Mr. Boag.—And the other machines?

Mr. Padhye.—They are used in the finishing processes for cutting table chimneys and fusing them. There is a machine to grind globes.

Mr. Boag.—That is all?

Mr. Padhye.—Yes.

Mr. Hodkin.—As regards the local lime that you are using, in what form are you getting it?

Mr. Padhye.—In the form of limestone.

Mr. Hodkin.—And you use only 10 parts of limestone in your batch?

Mr. Padhye.—We use slaked lime.

Mr. Hodkin.—Do you burn it in your works?

Mr. Padhye.—Yes.

Mr. Hodkin.—You get limestone and burn it in your works?

Mr. Padhye.—Yes.

Mr. Hodkin.—With regard to soda, in answer to one of Mr. Rahimtoola's questions you gave the idea that you found Magadi soda as good as Crescent brand?

Mr. Padhye.—Yes.

Mr. Hodkin.—You didn't find any difference, not even in colour?

Mr. Padhye.—You mean in the colour of the glass melted?

Mr. Hodkin.—Yes, you didn't find any difference?

Mr. Padhye.—No.

Mr. Hodkin.—As regards your replies to Questions 27 and 28, in answer to Question 27 you say that there are automatic and semi-automatic machines to replace the skilled labour?

Mr. Padhye.—Not in our factory.

Mr. Hodkin.—Wait a minute. You say that in answer to Question 27 and you say in answer to Question 28 that these machines do not exactly meet the conditions over here. Can you tell me in what way they don't meet your conditions?

Mr. Padhye.—They require a very large output.

Mr. Hodkin.—It is merely a question of output that you are thinking of?

Mr. Padhye.—Yes

Mr. Hodkin.—In answer to Question 34 you say that the fuel is applied directly because the unit is small. You think because the unit is small, it is necessary to apply the fuel directly?

Mr. Ogale.—Yes.

Mr. Hodkin.—And it is only in the case of a large unit you ought to apply it indirectly?

Mr. Ogale.—You may put in a gas furnace then.

Mr. Hodkin.—Provided only you have a large output?

Mr. Ogale.—Yes.

Mr. Hodkin.—But in answer to Question 7 you say that your unit may be said to be a fairly large one?

Mr. Ogale.—Yes, but not in comparison with large units in foreign countries.

Mr. Hodkin.—When you start one of your furnaces, taking your six pot furnace, how much coal do you use before you actually put in your glass?

Mr. Ogale.—About 10 tons.

Mr. Hodkin.—That gives you the requisite temperature for filling?

Mr. Ogale.—Yes.

Paisa Fund Glass Works.

A.—WRITTEN.

(1) Letter No. 1171, dated the 16th December, 1931.

We have the honour to submit herein enclosed the replies to the questionnaire issued by the Board, and hope you will find them in order.

Enclosure.

Introductory Note.

The Paisa Fund is a public Institution in Maharashtra conceived and started in 1899 and duly registered in 1905. The constitution defines the aims and objects as follows: To collect a fund from all classes of the Indian people for the regeneration of Agriculture, Art and Industry and to utilize it in accordance with the rules laid down for this purpose by the Central Committee.

Donations from one paisa and upwards are accepted and the membership is thus divided into several classes such as Patrons, Associates, Life Members, Ordinary Members and Voters, depending on the amount donated. These members elect a Central Committee in whose hands the whole execution is vested.

The Institution decided to start a school in Glass Technology in 1908 under the management of Mr. Ishwardas Varshnei who was also helped by a few Japanese labourers and an Indian Professor in Chemistry, Mr. B. S. Karandikar. By 1910 the Institution had trained about a dozen students and had written off about Rs. 10,000 as irrecoverable expenses. Some of the students were then given over the charge of the Institution and others started their own works, notably Mr. Ogale. This Institution has provided trained workmen for almost all factories in India.

The Institution has also taken up several other industries, some allied to glass and others quite independent.

✓ The glass division is now run as a semi-commercial proposition only.

The ideal of the Institution is to develop itself into a technical research Institute, such as the Mellon Institute of America or The Sheffield University in England.

Replies to questionnaire for glass manufacture.

1. This Institution was registered on the 16th October, 1905, under the Government of India Act, No. 21 of 1860. It is in accordance with this Act a Public Institution. The aims and objects of this Institution are duly furnished in the introductory note attached. It will thus be seen that it is not a private registered company or an unregistered firm for a private proprietor.

2. As it is not a limited company and as the Institution is run on the public donations and contributions the capital is elastic.

(2) The board of management consists of 28 members and the Superintendent an *ex-officio* member, totalling 29 in all.

(3) The superior management is wholly Indian.

3. Experiments in the field commenced in the month of October, 1908.

4. The normal melting capacity of the plant is at present 3 short tons per day.

5. (a) Lamp chimneys, globes, jars and other kinds of hollowware. We are also experimenting at present on bangles and heat-resisting glasses.

(b) 110,000 dozens. These includes figures for chimneys, jars, etc. This is the figure for the year 1930-31. Figures for the past year are not now available.

6. The Institution is situated at Talegaon-Dabhada, 20 miles from Poona, on the Bombay-Poona line.

This place was not selected with the due material considerations for fixing up a factory. The same can be gathered from the introductory note attached. The purpose of starting the Institution was purely educational. So the criteria required for locating a commercial concern seemed to be out of consideration to the originators. Besides the place being between Poona and Bombay was convenient to persons who wanted to watch its interests and could spend a couple of days at the week end under the salubrious and calm breeze.

The availability of certain deposits of good quartz near by, and cheap and sufficient labour, also influence them in the selection of this place.

(a) Of the raw materials, silica and lime were being tapped locally and soda ash is the imported stuff.

(b) The coal-fields unfortunately are mainly located and centralized in the small area between Bengal and Bihar and therefore its vicinity cannot be equally enjoyed by all concerns in India. The electric power of Tata's is passing at a couple of furlongs' distance and can be tapped whenever necessary.

(c) In the beginning the Institution was not handicapped for a market, as the small output of the practical classes could easily find its way at Poona. Even now as it has developed into a semi-commercial institution, we enjoy the privilege of the Bombay market—the greatest distributing centre—and partly the mofusal towns in the south.

(d) Labour supply is abundant and cheap.

7. The question is a very broad and controversial one. The prosperity of an enterprise will in general depend on four factors: (1) The economic environment, (2) Equipment of the plant, (3) Organization and management of the plant, (4) Selling department: and logically all these four play an equally important part. These resolve themselves further into four primary factors, viz. :—

- (1) Markets,
- (2) Raw materials,
- (3) Labour,
- (4) Power,

and as to how far each affects the location, it is to be considered in accordance with the local conditions and environments.

8. We are confident that our goods are equal in quality to the imported ones. There is a difference in the prices of the local articles as against the foreign and the main cause of the high value attached to the latter seems to be partly due to the long-standing reputation that they are enjoying. The consequent impression is that local production cannot equal the foreign glass. Owing to the ignorance of the consumers in this respect Indians are not able to get equivalent prices for their ware. The same fact is forcibly confirmed by some foreign experts as is evidenced by a statement made by Mr. Edward Meigh (President of the Society of Glass Technology, Sheffield). "It was distressing for those in the glass industry to find still among the general public that everything being done in glass had already been done by foreign countries."

9. We work throughout the year and do not feel the necessity of closing the works in accordance with weather conditions.

Raw materials.

10. (a) Silica (sand).
- (b) Alkali (soda ash and KNO_3).
- (c) Alkaline earths (lime).
- (d) Borax.

(e) Decolorizers.

(f) Fire-clay.

11. Requirements for the year ending September, 1931, were—

Sand	140 tons.
Soda	50 tons.
Lime	15 tons.

Other minor chemicals not determined.

12. The recipe is not a constant one, as different batches are oftentimes tried in order to determine the physical properties of the glasses they give.

But we adopt the formula in the range of—

Na_2O	0.5 CaO	5 SiO_2 and
1.5 Na_2O	CaO	5 SiO_2

for melting glass for hollowware.

13. Sand from Lohgarh, 853 miles, soda from Bombay, 98 miles, lime local, 20 miles, other chemicals from the Bombay market.

14. As we are not personally collecting any raw materials, we are not concerned with their extraction, etc.

15. Nil.

16. (a) & (b) Nil.

	Freight.	Misc.	Total.
	Rs. A. P.	Rs. A. P.	Rs. A. P.
(c) & (d) Sand per md.	0 11 3	0 4 9	1 0 0
Soda per ton	7 0 0	123 0 0	130 0 0
Lime per md.	Nil.	2 0 0	2 0 0

17. No.

18. Yes; soda ash and some other minor chemicals are at present imported. The Imperial Chemical Industries (India), Ltd., Bombay, who are our main suppliers of these materials, may be able to furnish details as regards prices, freight, customs duties, etc.

19. As to the possibility of the manufacture of these products on an economical scale locally, it is for the Industrial Chemist to survey and give an opinion.

20. The materials available at present are suitable enough for the line that we are pursuing, i.e., hollowware. The difficulty, however, is that the suppliers of some of the raw materials being non-technical men, care very little for the consistency of the raw materials and their analysis, both mechanical and chemical. No particular steps are taken for improving their materials. This handicap the manufacturer has to face and to remedy by his personal efforts and costs.

Sand.		Chemical.	
	Per cent.		Per cent.
Mechanical—			
Above 20	0.01	Loss on ignition	0.60
" 40	19.91	SiO_2	94.60
" 60	27.47	Al_2O_3 and Fe_2O_3	2.43
" 70	38.94	CaO	1.30
" 90	10.13	Al_2O_3 and Fe_2O_3	2.43
" 100	0.04		
Below 100	3.50		
	<hr/>		
	100		<hr/>
			99.80

<i>Lime.</i>		<i>Soda.</i>	
	Per cent.		Per cent.
Loss on ignition	21.4	Sodium carbonate . . . . .	.98
Silicious matter	2.2	NaCl	0.43
Fe ₂ O ₃ & Al ₂ O ₃	3.4	Na ₂ SO ₄	0.12
CaO	69.0	NaF	0.28
MgO	4.2	Insoluble matter	0.91
	<hr/>		<hr/>
	100.2		99.74
	<hr/>		<hr/>
<i>Raw fire-clay.</i>		<i>Coal, first grade.</i>	
	Per cent.		Per cent.
Loss on ignition	9.35	Moisture	5.00
SiO ₂	62.92	Volatile	35.90
Iron oxide	1.08	Fixed carbon	49.61
Al ₂ O ₃	25.29	Ash	9.10
CaO	0.57	Sulphur	0.39
MgO	0.29		<hr/>
Alkalies	0.58		100
	<hr/>		<hr/>
	100.08	Calorific value	7040
	<hr/>		<hr/>

21. So far as the constitution is concerned, there can be no appreciable difference.

22. We have now begun making our own pots of the common beehive type. The clays used are Indian, along with grog, and they are built by hand in moulds. Trials are going on with other foreign clays—German, Japanese, etc., and the whole investigation is continuing and incomplete. Till very recently we were using Japanese crucibles. The average price f.o.r. Bombay of a 600 lb. Japanese pot was about Rs. 46. With regard to the effect of transition on the life of the pots, we have no reliable information available.

23. The refractories used are fairly satisfactory. Burn & Co. of Jubbulpore are our suppliers of fire-bricks and blocks.

Labour.

24. As regards hollowware there seems to be no necessity for importing any skilled labour or expert supervision. India has sufficient labour available which can attain good skill if proper opportunities and training are given.

25. The whole labour and staff over here since 1915 are completely Indian.

26. In the course of about four to five years a workman who joins the factory gains enough skill and practice in the processes involved in the production of hollowware, with the co-ordinate help and instructions of his foremen. We have found by experience that there is absolutely no room to complain regarding the efficiency of local labour. They gain remarkable skill only if sufficient chances are afforded to them.

27. Most of the processes may be replaced by automatic and semi-automatic machines but this involves huge capital.

28. Confining to the hollowware there is not much of a necessity for machinery; more so as local labour is cheap. Besides, capital is not freely

coming forth to us as there is no guarantee of a return for it by way of dividends.

29. The thermal conditions naturally are expected to affect the labour efficiency to a certain degree; but situated in a temperate and cool place, we do not feel appreciably the effects of high temperature.

30. Total wages paid for 1930-31 excluding superior staff Rs. 28,000. Average rate skilled Re. 1-4 to Re. 1-8 per day. Average rate unskilled labour As. 8 to As. 10 per day. The total number of workmen employed 150.

31. Our labour being completely local, comes from a distance of a couple of miles and hence no necessity of the housing problem is felt. In the direction of promoting their economic welfare they run a small co-operative store here and every possible facility is given to them. Whenever necessary medical and other help is also rendered.

Power and fuel.

32. Coal is the principal fuel used at present. No difficulty is now being felt for getting it in sufficient quantities.

33. Coal comes from the Bengal coal-fields situated at a distance of 1,264 miles from here. The present freight is Rs. 12-4 per ton and its cost delivered at the works comes to about Rs. 18—19 per ton.

34. The fuel is applied directly as the unit is small.

35. There is no electric or steam power but only an oil engine for supplying power for grinding, etc.

36. The average ratio of fuel to the molten glass is two to one. In the case of finished glass the ratio is 5 : 2.

Equipment.

37. Our unit is now fairly large and enables us to make both ends meet.

Regarding the minimum unit no hard and fast rules can be laid down. The question is too general. Under a given set of data and local circumstances, the minimum unit may possibly be given but without that no adequate explanation can be furnished on paper.

38. There are no special processes involved in the works as different from those in vogue elsewhere.

39. We have not got any up-to-date machinery. Certain processes of manufacture require technical improvement in accordance with modern developments. The furnace itself is crude and wasteful as is opined by all experts and its defects are too well known for enumeration. The plant is also lacking in appliances—cutting, melting and polishing machines, etc., for giving better finish. Apart from this, more efficient means for controlling the furnaces are not resorted to on account of insufficient funds. The economy derived in the efficiency of the latter is about 10-15 per cent. in addition to obtaining better quality and constancy.

40. No.

41. The conditions in India at present are different from those in the competing countries; whereas in the latter there is a mass production arising out of bigger units, here in India we are forced to be content with a daily output of 1-2 tons of glass. Some thirty-forty years back some of the larger concerns, manned with so-called foreign experts, closed down with utter failures and consequently since then the capital is very shy in this field. Indians are therefore forced to fall back on the present type of furnace and working.

42. Almost all the demands of manufacturers (glass) necessary for the running of the plant are locally made and therefore there has been no necessity for importing any such machinery except the ordinary presses for stoppers, etc.

Market and foreign competition.

43. We have no figures available of the production of other glass manufacturers. Our figures of production for 1929-30 are Rs. 1,00,000.

44. Bombay and its suburbs are our principal markets besides a small portion in the mofusal down in the south.

45. (a) There are different rates for the kinds of glassware. Chimneys and globes come under class 4 and jars under 6. Absolutely no advantage with regard to freight over imported glass.

(b) It is charged on gross weight. The gross weight is nearly 2 or 2.2 times the net weight.

46. This information will be supplied on getting the reliable figures from the railway company.

47. It is too vague a question at present.

48. In the field of hollowware, Germany, Czechoslovakia, Japan and Belgium are the main exporting countries. Keen competition is felt in such dumping centres as Bombay, Madras, Karachi, etc.

49. (1) We have no information.

(2) (a) The latest quotation is Rs. 18 per gross for good quality, for Junior lantern globes, and different rates for other varieties of chimneys.

(b) The average price cannot be easily calculated.

50. Importers at Bombay can supply this information.

51. No definite figures are available, though off and on there are minor direct purchases by Government and other public bodies.

52. With regard to plant and machinery the Indian manufacturer is at a disadvantage. Labour is cheap. Freight concession and other facilities over the Great Indian Peninsula Railway are not easily granted for getting raw materials and disposing of finished products.

53. As a routine course we cannot expect the exporters to dump in goods at a loss; for as a business proposition they cannot run the plant on an uneconomical scale.

Capital.

54-55. Figures will be submitted in a few days after the auditing of the last year's accounts is complete.

56. The question is too general without any basis for calculation. An estimate shall be properly drawn up when data on the location, prevailing rates, etc., are furnished. This is too abstract for explanation.

57. As this is not a limited company the information cannot be furnished.

58. No debenture loans have been raised.

59. Such figures are not easily available for reasons explained already.

60. New schemes are not as yet drawn up.

Works cost and overhead charges.

61. Form filled up.

62. No data have been kept up properly and the recent attempts at recording them are on hand.

63. As we are not in the market for any other variety of glassware, we are not in a position to compare the variations in the expenditure.

64. Our knowledge in this respect is meagre at present. We will try to furnish them later.

65. Refer to our reply to Questions 54-55.

66. No such thing as the head office exists, though at Bombay there is the office of the Paise Fund Central Committee but the latter is no overhead on the works cost.

Claim for protection.

67. The points raised by the fiscal commission though approved by the Legislative Assembly may be discussed so far as their consistency is concerned. We admit that natural advantages of raw materials, a good market and cheap labour are all essential for the development of an industry; but we would like umblingly point out that it is circumlocution to argue this way; for unless an industry is established all these three facts cannot be fully tapped and utilized even if available. The principle of demand and supply is an economic one and one rises along with the other. Where there is a good output it has to find its way and a market will naturally be created. It is said that a number of tumblers are broken daily during washing in the tea shops of America. It is simply because the great output is to find its way. The statistics for the consumption of glassware in India during recent years shows a rapid rise. If the foreign countries had to be content with their home market, they should have had small uneconomical units unguarded by tariff walls. As their production is more they are creating the markets and pushing their goods. Demand and supply rises equally and one is co-ordinate of the other.

As for sufficient supply of labour it cannot be denied that labour is ample and cheap here in India. The only objection may be that it is not skilled. Skill in labour is not born unlike the aesthetic sciences. It is gained only by experience and opportunities. Such a scope can exist only if industries are established. There is no country which possessed expert skilled labour to start with.

With the rise and the development of the industry and at the cost of the nation, efficiency of the skilled labour naturally improves. It may be added that the present efficiency of the artisans employed in the line of hollowware here is good enough because sufficient chances and opportunities were afforded to them. The consequent development of the industry is owing to the earnest attempts and heavy losses sustained in the initial stages by the pioneers of the industry.

Now remains the so-called primary factor regarding the abundant supply of raw materials. The idea behind it that raw materials are basic and essential for the stability of the industry is all sound and good theoretically. But it is equally true that unless industries are started and developed indigenous raw materials cannot be fully tapped. Apart from this if facts and figures are taken, how many countries possess advantages of raw materials and still are they not guarded by tariff walls? Besides we feel that unless an industry is running and casual difficulties felt, even the raw materials of the neighbourhood are never even noticed. Had England no glass-sands till the commencement of War? and how is it that it had been overlooked? America though unaware of any local China clay deposits, was getting raw materials from Germany, etc., and the great War forced and necessitated her to survey the country and see if any suitable material can be tapped locally. The great War gave an impetus to almost all the countries to survey and to tap their local raw materials. Here in India the quarries of Loharga, etc., are only of recent origin and that too on account of the pressure felt from the increasing number of glass factories.

Regarding quality of glass-sands, in the words of Dr. Boswell, "India may therefore well be a self-supporting in the matter of glassware and if desired may provide the necessary pure sands for British optical glass making (page 81, Boswell's Memoir on British Resources of Sands suitable for Glass Making, 1916)". Besides all this, we would like to point out whether even now the Geological and Mineralogical wealth is completely surveyed and tapped to say that India possesses no advantages of raw materials merely because some foreign expert unaware of local condition

opined that raw material sources are not abundant, is it conclusive? Unless its necessity is felt, how can new sources be tapped? Even according to the recent Geological reports there are other sources of sand which are not at present exploited. Lime is plentiful locally and soda ash is the only imported stuff, though indigenous impure variety is available. Apart from this we would like to point out that the question of raw materials need not be over emphasised, at least in the case of the glass industry. The actual percentage of the cost of raw materials to the finished is very low. The whole fallacy lies in this that the argument of the fiscal commission is based on fictitious ideas to say that unless all these factors are present, protection cannot be given, falls to the ground. Necessity is the mother of invention. Unless factories are started Geological and Mineralogical resources cannot be all exploited. Labour not trained and market not created. If unless all these three conditions are not satisfied, protection cannot be given and it is admitted that the industry cannot stand on its own legs without protection, it is merely trying to argue in a circle and evade the issue.

It will thus be seen that "such natural advantages large home market" are plentiful and are going to rise in great proportions only with the development of the industry.

B. The Industrial Commission admits that the industries in India are in infancy and need to be guarded by tariff walls; but fetters the giving of protection to inconsistent factors. The very fact that Glass Industry has been pulling on all these years against odds and without any extraneous help, is enough proof for a *prima facie* case.

If the industry is guarded by tariff for a few years, interest and energy may be better concentrated toward more paying scientific problems for the ultimate benefit of the industry and thus with more economic means and better efficiency the industry shall naturally be able to face world competition.

68. (a) We would like to suggest that an import duty of about 60 per cent. be imposed on hollowware, i.e., globes, chimnies, jars, etc., for a period of ten years and circumstances need at present.

(b) The tariff shall be protective only imposed on imports.

69. To our knowledge there seems to be not even a remote possibility of affecting any other industry if protection is given to hollowware.

In conclusion we would like to submit the following few extracts from the report of the Indian Fiscal Commission on the necessity for the development of Indian industries, the need for their protection, etc.

Industrial progress there has been but on a limited scale and in comparison with other countries, it has been slow. We hold that the industrial development of India has not been commensurate with the size of the country, its population and its natural resources and we accept the conclusion drawn by the Industrial Commission "the industrial system is unevenly and inadequately developed"

The report further lays emphasis on the great advantages from industrial developments and stimulus for protective duties as advance will not be sufficiently rapid instead (page 42, para. 75).

The main argument for protection for the Glass Industry is to develop it and to give it an impetus to face world competition as otherwise it will not develop with great rapidity. In the opinion of the Fiscal Commission she possesses an abundance of raw materials, she has ample potential supply of cheap labour and adequate sources of power; and the establishment of two great manufacturing industries shows that she is capable of running these natural advantages to use.

In the light of the above, we strongly submit that the Glass Industry deserves every consideration essential for giving protection. Such a step will give added impetus for the development of the industry on more recent and scientific lines.

FORM No. 1.

Statement showing the total expenditure incurred at the works on the production of glass at Paisa Fund Glass Works, Talegaon.

Item.	1926-27.	1927-28.	1928-29.	1929-30.
	Rs.	Rs.	Rs.	Rs.
I.—Raw materials—				
(a) Sand	36,480	40,305	47,320	54,625
(b) Soda ash				
(c) Lime				
(d) Crucibles				
(e) Refractories				
(f) Other materials				
II.—Packing materials				
III.—Power and fuel				
IV.—Works labour	16,622	17,087	21,777	25,744
V.—Establishment	4,500	4,500	4,500	4,500
VI.—Current repairs	Nil.	Nil.	1,314	Nil.
VII.—Selling expense	937	1,211	6,549	7,692
VIII.—Miscellaneous—stationery, rent, taxes, etc.				
	6,685	7,149	7,835	6,954
Total	65,222	70,254	89,298	99,516

Total production of glass—

Melted	Data not available.			
Finished (approximate tons)	106	126	135	160

N.B.—Cost of raw materials for experimental work done is included in this. Figures for 1930-31 are not yet ready.

(2) Letter No. 1950, dated the 6th February, 1932, from the Paisa Fund Glass Works, Talegaon.

With reference to your letter No. 52, dated the 25th January, 1932, I am returning herewith the record of my oral evidence tendered before the Tariff Board on the 18th January, 1932, duly corrected. I am also attaching herewith 2 short notes which please hand over to the President, the one gives reference regarding the tariff to glass industry and the other one is on the high alumina content, in sand and this is meant for Mr. Hodkin. I am sending the other note in the next week.

Enclosure.

(1) Other references regarding the Tariff to Glass Industry.

1. "Glass Industry", December, 1931, page 255—American flint glass workers filed a brief before the Tariff Commission asking for an increase of 50 per cent. on imported blown glassware. Foreign glass manufacturers, it is claimed, have been selling blown glassware in United States of America as runs as 30 per cent. lower than prices quoted by domestic produces.

2. Journal of the Society of the Glass Technology—March, 1931, page 98, in the abstract No. 214, on the hollow glass industry of Czechoslovakia in 1930 mentioning that 90 per cent. of the total production was exported.

3. September, 1931, page 336, abstract No. 711, on the effect of customs union with Germany on the Austrian glass industry (Society of Glass Technology).

(2) *For Mr. Hodkin's perusal.*

With reference to his question on page 52 of the typed copy of oral evidence (marked XX) regarding the high alumina content in our sand, his attention is drawn to the analysis of Huttons Ambo sand—sample A, containing 2.54 Al₂O₃, besides 0.30 Fe₂O₃, mentioned in his own book—Text Book of Glass Technology, 1925 Edition, page 80. This is enough proof to show the existence of aluminous glass sands containing about 2.5 per cent. Al₂O₃. Besides he may be aware of the trend of thought of the present glass technologists to have from 3 to 5 per cent. of alumina in the glass.

(3) *Letter No. 2168, dated the 19th February, 1932, from Paisa Fund Glass Works.*

I have the honour of enclosing herewith a scheme for a Central Research Institute, which, I promised, in my oral evidence, to submit, in writing to the Tariff Board.

Enclosure.

Scheme for a Central Research Institute.

1. The state of the glass industry in infancy as it is, at present, rouses sympathy and co-operation of the nation and it is high time we consider the ways and means of rendering assistance to the industrialists and thus materially help the advance of industrial progress; and now that the glass industry has claimed protection, it is unto those interested in it to see that initiative is taken whereby the progress of the industry is assured and a high mark of efficiency achieved in order that it may stand on a line with the achievements of other nations and face world competition.

2. There are two distinct considerations in the matter of an industry. Its technical side and its business side. Both these have to be understood and studied distinctly. The technical side refers to production. The business side refers to consumption and distribution. Before actually starting any new venture, a considerable amount of intelligent labour has to be devoted to the task of preliminary reconnoitring—a study of the past history of the industry, earlier and perhaps unsuccessful attempts and the causes of their failures, the ease of getting capital, raw materials and banking facilities, the cost of expert knowledge, a comparative survey of world prices of the article, the suitability of the environment, conditions of the market, etc. In the absence of such a preliminary examination, many an industry which was started in enthusiasm and for the successful operations of which, there was every prospect of hopefulness, had to die of inanition in its very early stages. It is therefore indispensable that every new worker in the industrial field should equip himself with such a knowledge before he launches upon any productive venture.

3. An industry means specialised theoretical and practical knowledge. It requires workers who are possessed of an adequate intellectual calibre and even more important of a capacity for sustained and untiring labour. Industry is not like logic or mathematics or astronomy—a science—which is more or less static and to which few new additions could be made so as to alter its fundamental concept. Industry is essentially dynamic. It has constantly to shuffle and reshuffle. It depends on an infinite number of skilful permutations and combinations. What is required therefore is the develop-

ment of the faculty of adaption and a quickness of adjustment to circumstances. These qualities cannot and have not been acquired by mere university education either in India or abroad. Such an education, we have never denied, is absolutely necessary. It forms the only solid basis for further work but our contention is that it is not the future solid work itself. Students initially equipped with such a knowledge must work independently on distinct problems. They must not be fettered by considerations which do not exist in their countries' environment, even though they do exist in the case of other nations. There are no eternal, immutable laws in the science of industry. It cannot thrive on mere imitativeness.

4. The question of having a Central Research and Advisory Board has long been the talk of the day though its functions are not well and clearly defined so far. Before proceeding, the state of affairs that existed in other countries, may therefore be briefly reviewed.

5. Of the number of ways of advancing or improving the industry, some of them that were tried abroad may be considered as to their relative merits.

(1) Importing foreign experts though for a temporary period, does not seem to have advanced the industry.

(2) Some of the countries tried deputing their students to other countries for training, etc. Even this does not seem to have had any appreciable effect on the industry.

(3) They rather strengthened their own laboratories and extended the facilities for the intellectual work of their capable men.

(4) They facilitated the research work by creating a few posts for industrial fellowships.

(5) Certain institutions—*quasi* educational in nature—were also established.

Necessity is the mother of invention and when much difficulty was felt owing to the outbreak of war, a great impetus was given for local research. A number of institutions though inexistence already came forward to take up problems and by their co-operation materially helped the advance of the industry. Raw university men were then of no immediate use to the industry. Perfection can never be attained in a day or a year and still there is the widespread cry of low grade efficiency.

The university of Sheffield, Illinois (United States of America), etc., are the seats of the muse of the industry. The main function of such institutions has been educational—a regular course of training, though off and on—certain commercial problems that come to them receive also their attention.

(6) In those countries the industry has come to a high degree of perfection and as is the tendency of the 20th century, there has been specialization everywhere, creating experts of every kind who are available at all times to the manufacturer and handle individual cases and problems.

(7) But here in India, the situation is greatly different. The manufacturer is somewhat out of touch with the scientific side and even the very little sympathy he had, has waned away owing to regrettable failures of some foreign experts and of some foreign returned students; and therefore unless the manufacturers and capitalists are fully convinced of the scientific treatment of problems and the profits gained thereby, they have at present no sympathies with and no inclination to acknowledge the work of a scientific and cultured mind. Their sympathy is therefore to be secured for a policy of research by placing before them results beneficial and paying, with the minimum chances of losing anything.

(8) How to secure the sympathy of manufacturers is then the next question for consideration. It is therefore suggested that a Central Research Institute be established. Whatever its designation may be, it must be of help to the commercial body.

(9) The question of the personnel of such an institution may therefore be taken up first. There may be three suggestions, in the matter: (1) Foreign experts, (2) University men, (3) Local technologist,

The first suggestion is to import a foreign glass technologist (expert) from any university in America or Europe which has a first class department of glass technology. In the first place it is almost impossible to get a first class foreign expert; even the one who is available may not always be sufficiently communicative or skilled in teaching. Again in these days of specialization, which expert to import? whether a furnace engineer, whether an expert glass technologist, whether an expert in automatic machinery, in artistic ware, etc., and to crown all of salesmanship and advertising? As each one of them works co-ordinately with others in foreign countries, we have grave doubts as to which expert to bring. It must be admitted that our purse will not permit having all of them. Whether any pacca expert is able and can willingly come over here and conscientiously give us training and disclose the innermost secrets (of success) is a doubtful question. For, there are really pressing and intricate problems that need better brains in their own countries where there is even now a fierce competition and therefore who are not likely to be easily spared. Secondly, the expense of importing such an expert if spared one could be, will really be very hard and beyond our means. We are not sure that the industry can bear such a heavy burden in its present deplorable state. Even accepting the burden, how far the efforts of the experts will be towards Indianization and improving Indian efficiency, instead of, in the direction of exploiting the wealth of this country, to the benefit of his home country is also a question of grave consideration. Last but not least, he is handicapped in the ignorance of local conditions and accustomed to work as he is in an atmosphere of switch system, he feels it difficult to adjust his methods of work. Besides our dependence upon foreigners continues unabated—in fact a sense of diffidence is engendered amongst our workers when they are constantly accustomed to follow the lead of the foreign expert. We may not be misunderstood. We do not minimize the utility and importance of foreign training and foreign expert. What we want to point out is the enormous disequilibrium in the totality of the net gain from such a process and the totality of the cost which has to be paid—and has been paid in the past to secure it. This method therefore will not suit us.

(10) Now let us take the second suggestion. Of course science is essential for the advance of development of the industry but what science? Apart from that, the raw scientific man from the university is unable and handicapped to realise the real difficulties of the manufacturer. And again even in foreign countries, his researches are confined to small scale experiments. Therefore a necessity is felt even to them for establishing a semi-commercial plant or else the trials will have to be made in the existing factories. Such facilities shall have to be given to a university man if he is to work here in any well equipped university laboratory. In no parts of the world such commercial problems have been tackled and solved commercially in any university laboratory. This may be one of the reasons why such departments in other countries have not been of much direct help to the industrialists; for, there are very few really technical applied problems that are handled by them—the solution of which has been adopted by the manufacturer. So this method to our mind, will be very expensive and also ineffective.

(11) Now the third suggestion is to have an Indian glass technologist with commercial experience. He is our man who has diagnosed the bacteria that are affecting and poisoning the industry and he shall work on new parasites and antitoxins that shall invigorate the industry and achieve a tolerably good mark of efficiency. Besides the people who are guiding the industry of other nations are not at all foreigners. It would therefore be much more beneficial to spend the money and the labour which we have been spending on getting raw students trained in foreign lands or in getting foreign experts in our land on our own students here and on our own laboratories attached to, either factories or pioneering public Institutions.

(12) At the present state in India, we need no educational policy but a policy of research. By research we do not mean original theoretical researches but they meant the finding out of means and methods of working out and

utilising Indian raw materials, by Indian hands and with Indian machinery, if possible. This method though it may seem a lengthy one, to persons who want quick riches, is in our opinion the soundest one. Here the problem is met with and solved in all its aspects and stages. The policy of research is to be therefore on the following lines:—We need at present nothing new but it is not to be presumed that we shall have to copy the existing foreign methods; for conditions differ materially. Their systems of mass production and our small units are too characteristic to need mention. The research has therefore to be on the lines of adopting foreign methods to suit our requirements and conditions of work and later on, to run such methods on an economic scale. This can be gained only from a continuous systematic research.

(13) This again means some pioneering work which cannot be undertaken by Government, as it cannot devote full time and energy for it and does not receive public sympathy and co-operation nor by private or joint stock companies who are always short of funds for carrying out any kind of experimental work as they are not getting handsome profits in their business. Public bodies are, therefore, in our opinion, best fitted to take this lead. The results achieved by such institutions are ever encouraging. The work done so far by the Paise Fund in this field, may be mentioned for instance. Another instance may also be cited here, viz. The Bengal Chemical and Pharmaceutical Works, which have been to a great extent the result of the labour of original industrial researches of some of the best disciples of Bengal's veteran scientist—Dr. P. C. Ray. Government should therefore help such pioneering institutions to enable them to achieve better and speedy results, by placing at their disposal a suitable monetary grant and endowment.

(14) In order to facilitate the work of such public bodies in the matter of researches, we suggest also the founding of a small number of research fellowships—five in the beginning. These research workers are to work in such public institutions and in the laboratory attached thereto under the guidance and instructions of the Central Advisory Board as well as the staff of this public body. The necessity of having such a Board is, that it may act as a linking body between the research scholars on the one hand and the manufacturers on the other. Difficulty is oftentimes felt by the manufacturer in expressing his problems in scientific terms and the research scholar needs often the guidance so that his results may be of material use to the industrialists. If such a board is formed of able and experienced persons and supplied with sufficient funds, it can decide what researches must be tried to economise the cost and utilize the waste and then offer the problems to young intelligent students for tugging with, who may receive fellowships while they are doing research and prizes on the right solution. Thus the factories would begin to watch their processes very minutely and an ambition for research would be created in the educated classes who would gradually come forward to enlist themselves in industries. So the function of such an Advisory Board will be to act as the *via media* and to control, regulate and translate the work of the scholar.

(15) Apprentices get the best training in the factories and workshops, if we do not mind what time they spend for it. There is generally nobody in the factory to explain to the apprentice in a consistent and right way the different processes and their technique. He is to gather from his own experience in the course of time which means haphazard knowledge at a great loss of time, which disadvantages we expect to be removed by arranging short courses for workers in such a pioneering institution as well as by publishing bulletins in their own language so that they can read those and improve their own knowledge. Such a kind of work shall have to be done by this Advisory Board.

(16) The constitution of the Board is as follows:—One Director, five Members and Director of Industries, Bombay, *ex-officio*. In all seven members. The Director is a full-time one and has office at a central place like Bombay which is the greatest industrial and commercial center or near about

Bombay with the necessary office staff. He will be in close touch with the market conditions also and may be expected to issue bulletins off and on, and latter on, can arrange short courses for workers. He shall be an Indian glass technologist with good commercial experience and has done some research work. His services may also be made available to desirous manufacturers for any service at a nominal fee.

(17) These researches will not be sufficient if they are solely conducted in laboratories attached to any university. Hence arises the necessity of locating the Board near a semi-commercial factory where business interests do not clash or having a factory attached to the Board itself. Such an organization is absolutely necessary if the full returns are to be expected.

(18) Of the five members of the Board, two shall be chosen from amongst the glass manufacturers, one from the pioneering institution, one a chemist, and one, an engineer.

(19) The body shall be consultive and advisory. It shall meet once in a month at different places as shall be fixed up. The Director with the consent of the Board, shall arrange to regulate the works of the research workers. He shall set problems, supervise their work and give them due instructions.

(20) The beginning is therefore to be made though in a small way; and in accordance with the needs and the altered conditions, expansion may later on be affected.

(21) The expenses of running such a scheme according to our estimate come to a recurring amount of two lakhs of rupees, roughly per year, in addition to any investments on apparatus, machinery, etc., etc.

(22) The whole cost of running such an organization may easily be met by the Government by raising the existing import duties, as demanded by the glass manufacturers and handing over part of the increased revenues to this new Board.

THE PAISA FUND GLASS WORKS.

B.—ORAL.

**Evidence of Mr. R. D. CHANDORKAR, recorded at Bombay, on
Monday, the 18th January, 1932.**

President.—Mr. Chandorkar, you represent the Paisa Fund Glass Works?

Mr. Chandorkar.—Yes.

President.—I understand from your note that the Paisa Fund Glass Works are controlled and maintained by the Paisa Fund?

Mr. Chandorkar.—Yes, and the Paisa Fund is a fund which has been registered under Act XXI of 1860.

President.—That is under the Charitable and Religious Endowments Act?

Mr. Chandorkar.—Yes.

President.—Therefore you are definitely not a profit earning body?

Mr. Chandorkar.—That is perfectly right.

President.—Your works should be regarded rather in the nature of an industrial educational institution?

Mr. Chandorkar.—Yes.

President.—The expenditure that you give in your replies as incurred at the works from year to year is expenditure which includes not merely your commitments on purely commercial matters but also expenditure incurred on such things as training of workers. Therefore, if we are trying to consider what the costs of a purely commercial factory would be, you will admit that your costs would not be exactly a suitable basis?

Mr. Chandorkar.—Quite so.

President.—Therefore I propose this afternoon to confine my questions to the problem of training and research generally, in regard to the glass industry in India which is your main job.

Mr. Chandorkar.—For the present we are dealing in hollow ware, that is to say, tackling the problem of hollow ware. I will make this point clear by saying that we are for the time being solely devoting our energies to the manufacture of chimneys, globes and jars, I also mean illuminating ware too.

President.—Your works so far has been confined to hollow ware?

Mr. Chandorkar.—Yes, for the present.

President.—Do you make any pressed ware?

Mr. Chandorkar.—Very little.

President.—It is hollow ware done by mouth blowing?

Mr. Chandorkar.—Yes.

President.—Personally where did you get your training?

Mr. Chandorkar.—In the Paisa Fund Glass Works itself.

President.—How long have you been connected with the works at Talegaon?

Mr. Chandorkar.—Since 1915. Before this I was there as an apprentice for three years in the beginning; after completing that course I had a desire to go to Germany but on account of financial difficulties and the outbreak of war, my parents did not allow me to go outside India, so I went round from one place to another visiting almost all the Indian glass factories that were in existence then and saw personally the various places where the raw materials suitable for the glass industry could be found. After spending about three years in this way I had a mind to pack myself off for Germany. But in the meanwhile the war broke out and I was immediately called to Talegaon.

President.—Although you have been at Talegaon practically all the time, you have a fairly close acquaintance with the conditions of the glass industry throughout India?

Mr. Chandorkar.—I think so.

President.—You speak of a school which the institution started in 1908. Is that school still in existence?

Mr. Chandorkar.—Not exactly in the form in which we consider other schools.

President.—But actually when you started this in 1908 in what form exactly was it started?

Mr. Chandorkar.—There were some Japanese blowers, they were to show the practical methods and the theoretical side was in the hands of Prof. Karandikar. He used to teach the elementary principles of chemistry, physics and geology and afterwards when the students had sufficiently advanced, physical chemistry, glass technology and further details of heat measurement and fuel technology were taught.

President.—When the school was started in 1908 it was started not merely with the object of giving practical training to the pupils in the school but was also with the object of giving a certain elementary training in the scientific aspect of the glass industry?

Mr. Chandorkar.—Yes, quite so.

President.—What kind of previous equipment did these students have, who were admitted into the institution?

Mr. Chandorkar.—Up to the matriculation standard.

President.—And the theoretical and practical training together covered a period of three years?

Mr. Chandorkar.—Yes.

President.—How many pupils then were you in a position to admit every year?

Mr. Chandorkar.—During the whole period of those three years we admitted 16 students.

President.—Roughly about five pupils every year?

Mr. Chandorkar.—Yes.

President.—The school in existence now is run on precisely the same lines?

Mr. Chandorkar.—The school has changed to a certain extent. Because soon after the school started, the political movement had taken a different turn and the members of the managing committee decided to hand over the institution for a time to a man who could conduct the whole business on business lines. Mr. Ishwardas Vershnei who is now the Managing Agent of the United Provinces Glass Works Limited, Bahjoi, took over the whole factory on lease for about five years in 1910.

President.—When he took it over in 1910 did he run it purely as a commercial concern or did he use it partly as a training institution?

Mr. Chandorkar.—Purely as a commercial proposition, but the condition insisted was that he must teach the students who were admitted in 1909.

President.—He gave them practical training?

Mr. Chandorkar.—Yes.

President.—But there was no attempt to teach them the theory of glass-making?

Mr. Chandorkar.—Prof. Karandikar was still there to teach them the theoretical side of the industry. Then the whole aspect was changed because the committee thought that the training that was being given to the students was unsatisfactory, the main object of starting this institution being to train our top men, skilled labour and so on, and according to their views that object was not being safeguarded and therefore they asked Mr. Vershnei to go elsewhere and Mr. Vershnei had in the meantime made

arrangements with the Proprietor of the Ambala Glass Works, known as the Upper India Glass Works.

President.—In 1915 the works were put back to the original basis, that is to say very largely as a centre for practical and theoretical training and it has continued to this day on that basis?

Mr. Chandorkar.—You are right.

President.—You admit five pupils every year?

Mr. Chandorkar.—Not every year. For two years, we could not take any apprentices.

President.—What is the present position? How many students are you able to admit every year now?

Mr. Chandorkar.—Three. We have changed our old plan in respect of admitting apprentices. Now we are only admitting graduates in science.

President.—Who is in charge of the theoretical section of the school?

Mr. Chandorkar.—We don't regularly teach them in theory. What we do is this: we give them certain portions to read and then explain those portions to them, so there is no regular class for theoretical training now.

President.—Are these graduate apprentices expected to do the work of ordinary apprentices?

Mr. Chandorkar.—Yes.

President.—How many hours do they work?

Mr. Chandorkar.—Eight hours.

President.—I suppose you start them first on the less difficult processes and then take them to the more difficult processes?

Mr. Chandorkar.—There is a general feeling amongst so-called graduates not to worry with the physical manual work, so in order to give them an idea of the work they will be called upon to do in the future, we do the work ourselves in the beginning along with them for at least a month, so that the dislike for work gradually disappears. We do the work ourselves side by side with them so that they may not think that it is beneath their dignity to work like that. Of course they generally do not like doing this work in the beginning.

President.—What exactly is the sort of prospect which is open to a graduate pupil whom you have trained?

Mr. Chandorkar.—If they can find capitalists, they can start independent works in different parts of India.

President.—How many graduate apprentices have you now?

Mr. Chandorkar.—Only one at present. One of our pupils is in charge of a glass factory in Gondia in the Central Provinces.

President.—Would a graduate who has undergone a three years' course in your works be prepared to accept a subordinate job in any of the existing glass works?

Mr. Chandorkar.—I don't think there would be any objection.

President.—What sort of remuneration would he accept? I gather from representations that we received from glass works all over the country that a skilled glass manufacturer cannot expect to get more than, say, Rs. 50 a month and a person who is not sufficiently skilled would have to start on something lower than that. Supposing a graduate who has completed his three years course from your institution is offered Rs. 50 to start with, would he accept a job in a glass works?

Mr. Chandorkar.—He would like to work on a different basis. He would not insist on any payment in the beginning; he would work either on a contract basis or he would enter into some definite understanding regarding the remuneration he would be entitled to on proving himself to be sufficiently capable of ably managing the works, within a certain period. Unless he satisfied the management I suppose he would not ask for any remuneration.

President.—If we were looking at the question from the point of view of supplying trained workers for the existing glass factories in India, would it be more useful for your works to admit School Final Certificate Boys and give them a grounding in theory and practice or do you think it more useful to admit graduates?

Mr. Chandorkar.—We shall have to make certain compartments—men capable of controlling the purely technical side and those who would be able to attend to the mechanical side. After all this is a too technical line and those students who have sufficient grounding in science would be in a better position to manage the technical and chemical side while the others the mechanical side of the glass industry.

President.—The difficulty that occurs to me is this. Suppose the more important glass works in India, for example, the Naini Glass Works and Bahjoi Glass Works wanted to train workers for their own purpose, would it not be, from their point of view, better to admit apprentices into their works and give training themselves rather than in an institution like yours?

Mr. Chandorkar.—Actually they are doing that for the present; they are training their own men.

President.—What precisely is the scope that the Indian Glass Industry offers to an institution like yours?

Mr. Chandorkar.—There are various items which are not tackled by every glass works. For example the question of scientific glassware is a problem. Nobody has seriously devoted his attention to this line. If I am not wrong, my memory tells me that the imports of scientific glassware run to the extent of 16 lakhs.

President.—What kind of staff have you at Talegaon? What is the scientific equipment of your staff who are concerned with theoretical training?

Mr. Chandorkar.—They have all undergone the courses in glass technology, geology, physics and chemistry, but they have not got any university degrees.

President.—You mean the people who teach the theory?

Mr. Chandorkar.—Yes, besides they have a thorough understanding of the sciences in theory. They are given education by Professor Karandikar. They have not received their technical education in any University college. Whatever theory is taught in schools and colleges is to be applied in the practical work and the application of the theoretical principles is rather difficult. Only the experienced man who has studied that problem very carefully can apply those principles.

President.—I want to raise that point later on. In the meantime I want to know this. Do you pay any stipends to your pupils?

Mr. Chandorkar.—Yes. Formerly we used to pay, but afterwards we found that the students or apprentices used to run away or they were seduced by other glass factories. So whatever expenses we incurred were wasted.

Mr. Boag.—You got no return?

Mr. Chandorkar.—No. We had to change this system afterwards. We introduced the new system and that was, they had to maintain themselves for the first 15 months.

President.—For the first 15 months they had to maintain themselves?

Mr. Chandorkar.—Yes. Afterwards they were paid from the factory.

President.—What were they paid?

Mr. Chandorkar.—About Rs. 20 a month.

Mr. Rahimtoola.—Do you provide boarding for them?

Mr. Chandorkar.—The boarding house is there. We have specially kept a cook. They have got residential quarters.

Mr. Rahimtoola.—Free of charge?

Mr. Chandorkar.—Yes.

Mr. Rahimtoola.—But they have got to provide their own food?

Mr. Chandorkar.—Yes.

President.—Out of this Rs. 20?

Mr. Chandorkar.—Yes.

President.—Do you get any Government grant?

Mr. Chandorkar.—Up till now we have not received any grant.

President.—It has been suggested to us by various manufacturers that it would probably be a good thing for the glass industry in India if there could be organised a central institution for research and for training workers. What is your opinion about it? Is there a need for a well equipped central institution for research?

Mr. Chandorkar.—That will depend upon the amount that could be spent on that institution.

President.—Listening to the evidence of manufacturers from various parts of India, it occurred to me that there were various questions connected such as the composition of materials, the provision of the right kinds of apparatus, the relation between the materials and the apparatus used, etc., in regard to which Indian manufacturers at present are depending entirely on what I may call empirical knowledge, knowledge which they have gained by their own experience. Now if we have some institution which is charged with the duty of co-ordinating the work done in the way of experiments by the various factories and at the same time carry on research with proper equipment and under the best kind of supervision, there is a good deal in the way of the proper selection of materials, apparatus and so on which the industry could learn, is'n't there?

Mr. Chandorkar.—I think in that case our institution will serve the best purpose, because we have got a very good experience of this industry. Secondly we have a very good library which the members of the Tariff Board have personally seen, we have almost all the up-to-date books on glass technology, pottery, fuels, etc.

President.—I will come to the question of the location later on. For the present I am concerned with the general problem. There is need in the conditions of the glass industry at present for a well equipped central organisation?

Mr. Chandorkar.—No doubt there is.

President.—What exactly are the functions which you will propose for a central institution of the kind? I will give you my ideas which are purely tentative. First there is the important question of carrying on research in materials, apparatus and various other matters connected with the glass industry. That is one thing. Another thing would be this. After all it is very difficult for us to find funds for starting central institutions of this kind in different parts of India. As you say, a central institution of that kind, if it is to be of any use, must be very well equipped.

Mr. Chandorkar.—Certainly.

President.—Therefore from the point of view of economy it may probably be better to concentrate your resources in one place. In that case it would be necessary for you to provide for visits of the staff of the central institution to factories in different parts of the country. For example assuming the institution was in Bombay, supposing a factory in Calcutta which had just located a sand deposit near their works wanted to know all about the mechanical and chemical composition of that sand, they would send it for analysis here. After all you can analyse only the samples and you want somebody to go and inspect the actual deposit and advise the factory. Various problems of that kind may arise. It would therefore be necessary to provide besides laboratory and research staff, a sufficient number of staff in the institution to be able in this personal way to get into touch with

the factories located in different parts of India. Don't you think it is necessary?

Mr. Chandorkar.—Yes, it is necessary.

President.—And the third point is that you have got to provide some kind of training for actual glass workers.

Mr. Chandorkar.—That is also quite essential.

President.—As far as I can understand, speaking subject to correction, if you are going to protect the Indian glass industry, then you need to train up two classes of workers; first, those who want to take up subordinate technical work, and secondly the sort of men who would be able to undertake superior technical and managerial work in the factory. Therefore there is room for training superior workers and there is room for training inferior classes of workers. Both these should be aimed at.

Mr. Chandorkar.—Yes.

President.—As far as research is concerned, what is your personal opinion of the sort of staff that would be required for first class research work? After all if research work is to be of any use, it must be first class research.

Mr. Chandorkar.—You mean pure research?

President.—I will tell you the kind of question that I have in mind. There is a factory which has been doing its work so far by hand process. All the manipulation is done by hand. They are at present thinking of providing themselves with automatic machinery. It has got to be determined whether the particular kind of automatic machinery that they have in view would be suitable under Indian conditions. It has got to be determined further whether the kind of glass composition which would have sufficed for hand processes would be equally suitable for working by machinery. When questions of that kind arise, it is necessary that there must be somebody who would be able, as the result of research work on the problem, to give the manufacturer his considered opinion based on experimental work.

Mr. Chandorkar.—Yes, it is essential.

President.—If you want to provide a really satisfactory kind of research staff who would tackle work of that kind, what personally is your idea? Where can we get the staff?

Mr. Chandorkar.—This is rather a complex question.

President.—I admit it is a complex question, but I should like your opinion on it.

Mr. Chandorkar.—In the first place I will explain a little bit as regards the efficiency of the machinery. I don't think you will have any objection if I do. Supposing you have a technical man who doesn't understand the practical side of it or of the conditions that prevail in different parts of the world, he will not be in a position to state authoritatively whether this particular process will be effective or economical or not, so that the man will have to undergo a certain amount of training in the beginning under an experienced man. I shall just explain this to you. Unfortunately I haven't got that bulletin now with me.

President.—It would be enough if you give me a general idea.

Mr. Chandorkar.—Here is a journal of the ceramic industry which practically deals in all technical subjects on ceramic industries. Here the writer of the article has compared the efficiency of hand labour with that of machine labour. You will admit that the wages in America are high and the efficiency obtained there with the machine work works up to, in chimneyware, only 42 per cent. That means two-fifths. In that case if a man, without any consideration from the business point of view, advises a manufacturer to go in for machine work, it will not be paying in India, because in India the wages for skilled labour are too low. That is not the case in America. On the other side we shall have to consider the deprecia-

tion and other repairing charges. Because it is paying in one country, it is not necessarily true that it will be paying in India.

President.—That is precisely the sort of question that will have to be considered. That is to say although in the abstract it is possible to put forward a strong case for the substitution of machinery, actually in the conditions of the country taking the rate of wages into account, it may be that machinery may not prove economical or so suitable as hand process. That is just the type of question on which Indian manufacturers would require considered advice. I will try to put my question in a different form so as to make it a little less complex. There are three types of men that I can think of who can be entrusted with the sort of work we are considering. At present in various Universities in India you have on the whole first class scientific men, men who have been trained in general sciences, first class chemists, first class physicists and first class engineers. Supposing in connection with the scientific departments of one of the leading Universities in India we organised a section whose function would be to do research on the scientific problems connected with glass manufacture, the chemistry man would do the chemistry part of it, the physics man the physics part of it and the engineering man the engineering part of it. Supposing problems were divided up in that way and research organised on those lines, probably under certain conditions you might be able to get fairly satisfactory results. That is one way of doing it. Another way of doing it is to secure a glass technologist. We could get a man who has been trained in glass technology who has established his reputation as a research worker. We can put him in charge of it instead of dividing the work between various men. You get a man who combines all the knowledge required for the technical problems connected with glass. The third way of doing it is to get a man who has not merely had training and experience in glass technology, but who adds to it experience of running a commercial glass works. That is to say he knows not merely the scientific, but also the commercial and industrial part of manufacturing glass. These are the three ways in which one can do it. I take it from what you have said.

Mr. Chandokar.—By the way I will just help you.

President.—Let me finish. As far as I can understand the problem, these are the three ways in which we can organise the research. As you look at it, which of these three do you prefer?

Mr. Chandokar.—The thing is this. There are various problems connected with the glass industry and only a theoretical man will not be able to give much guidance to the practical people—I mean the business people. For example there is a very knotty problem of furnace in the glass industry. Even in the so-called highly developed civilised countries, the efficiency of the furnace has not exceeded 15 per cent. That is indeed a very knotty problem. Even the so-called highly technical people, though they are working at the problem day and night, are still unable to find out a suitable way of improving the efficiency of the furnace. In this connection I will just read out to you an extract from the "Pottery Gazette" of 1st December, 1931, from an article on "The Future of Glass Melting" by E. Meigh, M.B.E., M.Sc.:—

"THE FUTURE OF GLASS MELTING.

By E. MEIGH, M.B.E., M.Sc.

Presidential Address to the Society of Glass Technology.

The Responsibility of Science.—It was of significance to them as members of a scientific society to observe that in many quarters the responsibility for the present world industrial disorders was being laid at the door of science. Even eminent philosophers were ascribing to physical science the

cause of the chaos. In face of such indictments of science, and admitting the serious nature of the present difficulties and complications, one could not be surprised if a glass manufacturer hesitated to incur the expense of scientific assistance and of costly research. At best, if successful in reducing manufacturing costs, the saving was immediately absorbed by the cutting of selling prices to keep pace with the furious competition which was said to be the result of over production and an unsheltered home market. Yet one would go so far as to assert that every step to progress which physical science might make in the near future could only add to our dangers and complexities. As Prof. William McDougall said, when recently lecturing before the University of Manchester: 'The remedy for science is more science; more knowledge systematically organised; but what sort of science?'

Foreign competition.—One had to admit that the present conditions of the glass industry were far from happy and whilst recognising the depth of feeling at the back of the lamentations that were heard, there did seem to be some justice in the claim that here was an industry which, in spite of the remarkable achievements of the British glass technologists during the past fifteen years—achievements which had increased efficiency and reduced manufacturing costs substantially was unable to hold its own in an unprotected home market serving as a dumping ground for foreign competitors, fortified by low wages, subsidised by Governmental support, and protected by high tariff walls."

President.—I don't understand the language of scientists, but as far as I can make out his point is that unless research work in glass technology is undertaken along with a suitable system of assistance for the industry there would be no results achieved. That is a proposition which for the time being I don't want to question, but assuming adequate protection is going to be granted to the Indian glass industry I want your opinion as to the lines on which the speediest results could be achieved?

Mr. Chandorkar.—If speediest results are to be achieved, the Indian industries must be guarded at any cost. So, if at all you are going to have such an institution, the top man must be an Indian.

President.—Leave the question of personnel alone. The real point that I am now considering is: suppose we are able to organise an institution for research—and you agree that there is need for it—do you want in charge of that institution a man who has a general scientific equipment or a man who has been trained in glass technology or a man who knows both the technological and the commercial sides of glass manufacture?

Mr. Chandorkar.—He must be a man who has had a good experience of glass manufacture and a good grounding in science, physical as well as chemical. The cheapest method would in my opinion be that those who are already in the line in India should form a group of consulting or advisory Board.

President.—I am coming to that point later on. At present I am giving you three alternatives. The ideal choice would be if you could get a man who has had both technological and commercial experience.

Mr. Chandorkar.—With Indian experience.

President.—Assume for the time being that he has actual experience of Indian conditions, he would be more expensive than a person who has been trained in glass technology only and who has had no experience of actual working of a glass factory. It would be still more expensive than getting work of this kind done in a University Laboratory which is already in existence. The third method would be the least expensive. The second would be more expensive than the third and less expensive than the first. What I want to know is: could we get fairly satisfactory results by adopting the last and the least expensive method or do you absolutely rule that out?

Mr. Chandorkar.—I should like to think over this problem a little bit seriously before expressing any opinion on it.

President.—You need not commit yourself to anything.

Mr. Chandorkar.—If you have no objection, I shall give you my views more explicitly to-morrow because I want to think over the problem.

President.—You would like to think it over?

Mr. Chandorkar.—Yes, if you have no objection.

President.—Then you would send your answer in writing?

Mr. Chandorkar.—Yes, I shall do so, or I may come personally and see you to-morrow.

President.—It is the Board as such that wants to know. My personal views do not matter much. It is much better, in that case, for you to send it in the form of a considered note. Make it as full as you can.

Mr. Chandorkar.—Yes, I will do so.

President.—I have given you what I personally consider to be the functions of the Institute of Research and I have also told you the sort of staff that you might provide and considering both efficiency and cost, I want you to suggest a scheme which on the whole you consider the most suitable under present conditions in this country?

Mr. Chandorkar.—Yes, I will.

President.—There is another question to which I want to invite your attention. A problem we have been faced with in the course of our examination of Indian manufacturers is that practically in every market in India, Indian goods fetch lower prices than imported goods. I don't think that there is any exception.

Mr. Chandorkar.—No.

President.—Indian goods which are quite as good in point of quality and appearance as imported goods fetch lower prices for the reason that Indian goods generally rightly or wrongly have the reputation of being inferior goods. That obviously is a factor which would seriously hamper the industry. There are various reasons why Indian goods fetch a lower price. One is the general feeling in this country in every industry that if an article is locally made, it is inferior. There is another reason. In certain lines of glassware, the Indian manufacturer, without knowing precisely the extent of the market there is in the country, tries to compete in an unfair way with his own neighbour. Although there is a sufficient market in the country for the production of all the glass factories he proceeds to undercut his neighbour. It is necessary, if protection is going to be granted, that this sort of practice ought to cease. Otherwise you might levy a duty of 200 per cent. and yet the Indian manufacturers would not get a penny worth of benefit out of it. Now, supposing you had a central institution for research, could you, by suitable organisation, use that as the nucleus for an Association of Indian Glass Manufacturers with the idea of raising up standards, imparting correct commercial information regarding the extent of markets and various matters of that kind? At first it may be necessary to recommend that Government should help with funds, organisation and so on. But ultimately if the Indian industry is to reap the full benefit, it is necessary that this must be an institution organised and controlled by the industry itself. Now is there any way in which you can get this central institution of research to develop sooner or later—into a really effective Association of Indian Glass Manufacturers? Do you follow my point?

Mr. Chandorkar.—Yes.

President.—Have you ideas on that question?

Mr. Chandorkar.—I have no idea about that for the present.

President.—Do you think that it is very important?

Mr. Chandorkar.—No doubt it is very important, but the thing is this. When there is such an unfair competition, the question that naturally arises is how to prevent it?

President.—You mean unfair competition from the importers?

Mr. Chandorkar.—From the importers as well as from local manufacturers. Why should there be such an unfair competition in the country itself? There might be various reasons for that. One of the reasons to my mind is that the quality of the goods turned out by certain manufacturers is not up to the standard of other manufacturers. For the newcomer in the field there is no protection. The experienced factories have got long standing connections in the market. They have established their reputation. Under such circumstances, the newcomer has to undersell his goods, though not at a loss, yet at a lesser price in competition with his other experienced Indian manufacturers. He has to do so because he is not in a position to secure the same price as others.

President.—Why should he undercut? There is market for everybody.

Mr. Chandorkar.—The difficulty is about quality. If the quality is not the same, naturally the merchants refuse to pay the same price.

President.—Let me understand the point. There are some Indian manufacturers who produce quality goods. There are other manufacturers—inexperienced manufacturers—who produce low quality goods. Now the low quality goods find their way into the market and the dealer in goods or the consumer of goods says “This is Indian glass and is so bad”. That reputation affects the whole field of Indian manufacturers. Now, we have to stop that. I will tell you one way of doing that. If there is a central institution which is in a position to test the quality of goods and the goods bear the mark of a guarantee provided by the central institution, then straightaway the Indian goods classify themselves into two groups. One is tested and guaranteed Indian goods and the other untested. The consumer is able to say “These are Indian goods, but they are not guaranteed Indian goods” and thus the really progressive manufacturer will have his interests safeguarded. Am I right?

Mr. Chandorkar.—You are perfectly right in theory. I shall put before you the other side of the manufacturer who is working at present. The present financial position of the consumer has gone from bad to worse so much so that he prefers to buy a cheap article. He does not want to buy a good article at a higher price. His natural inclination is to go in for a cheap article because he has not got sufficient money to buy the better article. The tendency of the manufacturer is therefore to sell whatever he has turned out.

President.—The Indian consumers are of two classes. There is a fairly considerable body of Indian consumers who want quality goods. There is also a large body of Indian consumers who want cheap goods. Now the progressive manufacturer can make quality goods and have them tested for the sake of the superior consumers, and he can make untested goods for the sake of the bulk of the market. There is nothing to prevent him from doing that.

Mr. Chandorkar.—It will decidedly help the Indian manufacturer in getting a higher price but the present difficulty of the manufacturer is this. I am just putting before you the practical side of the question. The manufacturer has not got sufficient funds with him. The manufacturer is always handicapped for want of funds. As soon as he manufactures, he wants to dispose of his goods. He wants quick return for his manufactured goods.

President.—Supposing we give them adequate protection, don't you think that it is very important that the Indian industry should survive this reputation which hampers it in competition with foreign goods?

Mr. Chandorkar.—Along with that we should educate our people.

President.—That is a very big problem, to educate 350 millions.

Mr. Chandorkar.—Unless we do that educative work, it is not possible to get better price even by testing the articles as you suggest. Even in a highly civilised country.....

President.—Can you suggest some method by which an Association for the purpose of improving standards in the Glass industry can be brought into existence in connection with a central organisation of research?

Mr. Chandorkar.—That is one of the ways.

President.—How exactly would you bring it about?

Mr. Chandorkar.—That will depend upon the people who represent the Association. They must be in a position to give something in return to the manufacturer. They must be able to show them the proper way. Simply by testing the manufacturers' goods, their real difficulties will not be solved.

President.—If it is suggested that this central institution, even though in the first instance it is started with Government funds and the manufacturer bears no responsibility for it, should be very closely associated with a representative body of Indian manufacturers, that would be to the point?

Mr. Chandorkar.—Quite so. Such an Association or Institution will go to improve the condition of the manufacturer. If he gets a better price for his articles, it will surely help him.

President.—You are not going to save the Indian industry simply by improving the technical side of it, because the commercial side to my mind is equally important.

Mr. Chandorkar.—Certainly.

President.—If you are going to have a central organization, that central organisation, either by itself or in conjunction with some other body, must be able to look after both the commercial and technical parts of it.

Mr. Chandorkar.—I think such an institution will surely be of help to the industry.

President.—And without it the Indian industry may not be able to maintain its progress?

Mr. Chandorkar.—Exactly. Those who are now in the field will surely try to help the industry; they will do their utmost, but if the Government or some other institution come forward, it will decidedly add to the benefit of the Glass industry.

President.—Have you any suggestions about the location of such an institution?

Mr. Chandorkar.—Naturally I would recommend my own place!

President.—Apart from personal association?

Mr. Chandorkar.—It will take some time before I can commit myself to a particular place.

Mr. Rahimtoola.—Mr. Chandorkar, you said you visited some of the factories that were in existence in 1909?

Mr. Chandorkar.—After 1909.

Mr. Rahimtoola.—Were they all the factories which are in existence at present?

Mr. Chandorkar.—Some of them.

Mr. Rahimtoola.—What is your opinion about the glass they turn out?

Mr. Chandorkar.—In some of the glass works they are turning out very good glass, e.g., at Ozalewadi and at Balawali.

Mr. Rahimtoola.—How do you compare their glassware as to the quality with imported glassware?

Mr. Chandorkar.—They stand fairly well.

Mr. Rahimtoola.—In spite of the fact that according to you the quality is about equal, they don't fetch the same price?

Mr. Chandorkar.—That is correct.

Mr. Rahimtoola.—I have been studying this question and I find that the question of Indian goods, though of the same quality getting a lower price is entirely due to the dealers' manipulation.

Mr. Chandorkar.—Yes, to a certain degree.

Mr. Rahimtoola.—Because the dealers can get better profits on imported goods whose qualities are unknown, than on Indian made articles. Therefore it is difficult for any association however good its intentions may be to remedy this defect.

Mr. Chandorkar.—In that case what will happen is this. The buying public are under that supposition at present, because they have no personal knowledge of the quality: they are under the impression that whatever is turned out in India is not good, because they always think or are made to think that whatever is made in foreign countries is excellent.

Mr. Rahimtoola.—Take a purchaser who goes into the market to buy the Indian stuff; he says to himself though the quality is equally good, the Indian made article which bears no customs duty, ought to be cheaper than the imported article.

Mr. Chandorkar.—Theoretically it is correct. The poor man who does not understand the technique of the industry might be persuaded by propaganda to buy the Indian article.

Mr. Rahimtoola.—I am talking of the impression of a purchaser without persuasion or propaganda. An ordinary man goes to purchase an article and if he is told that a certain article is made in India which is equal in quality to the imported article, naturally he must think that the cost ought to be cheaper in his own country so that inspite of the quality of the two being equal it will not be possible to obtain the price as the imported article and no amount of education will be able to get rid of that impression.

Mr. Chandorkar.—I quite agree with you in this respect but I have got another matter to put before you. There are certain lines which are not in general use by the ordinary people. Supposing we manufacture scientific ware. People generally don't buy such things. There the man in the laboratory is under the impression that Indian goods are inferior and unless he is shown by actual test that his impression is wrong, he won't buy Indian goods.

Mr. Rahimtoola.—A man who buy scientific instruments is supposed to know what he is to buy.

Mr. Chandorkar.—I have got different experience in this matter.

Mr. Rahimtoola.—A man with better scientific knowledge knows better than the ordinary man in the street who is buying a chimney or a glass jar. The ordinary man naturally expects to get a cheaper article; therefore, leaving aside educated people who buy scientific articles or things of that sort which are very little compared with the total number of articles produced in India. I entirely agree with you that there may be something in what you say, but these educated people are so few in number that they can take care of themselves. I am telling you of the defects which no amount of propaganda can get rid of.

Mr. Chandorkar.—Such a sort of institution will certainly improve the understanding of the ordinary man in the street.

Mr. Rahimtoola.—It may help him but it won't induce him to pay more for your products. You gave the Chairman to understand that you are in favour of a central institution provided that the top man was an Indian. Can you tell me whether Indians with the requisite qualification are available at present in India?

Mr. Chandorkar.—Yes they are.

Mr. Rahimtoola.—With what experience?

Mr. Chandorkar.—With Indian as well as foreign experience.

Mr. Rahimtoola.—Men who will be able to take charge of a research institute in India?

Mr. Chandorkar.—Yes.

Mr. Rahimtoola.—What work are they at present engaged in?

Mr. Chandorkar.—I would not like to go into these details at present, but if the matter develops, then I can go into these things. You can take it from me that the men I have in view have full aptitude for theoretical as well as practical work.

Mr. Rahimtoola.—Who have done research work in India under Indian conditions?

Mr. Chandorkar.—Yes.

Mr. Rahimtoola.—You said that you have not received any grants for your institution. Do I understand that you applied for it?

Mr. Chandorkar.—I am only representing the technical side; I am not solely in charge of this institution so I can't say off-hand.

Mr. Rahimtoola.—When you make a statement of that kind it has two meanings, either that the institution with which you are connected has applied for a grant which has not been granted or you have not applied.

Mr. Chandorkar.—I think, no financial assistance was asked for by us.

Mr. Rahimtoola.—The institution is for training students and yet it was not thought fit to ask for help from Government?

Mr. Chandorkar.—We have got funds to meet the expenses for training students. If the Government come forward with help, we won't refuse it.

Mr. Rahimtoola.—Government can only come in when an application is made. You want to adopt a curious method that Government should look round for industrial institutions and ask which industry is in need of help!

Mr. Chandorkar.—Yes, that is my personal opinion.

Mr. Rahimtoola.—You say the institute is managed by the Central Committee. May I know what sort of control it exercises on the glass works?

Mr. Chandorkar.—The number of members of the Board is 29 including the *ex-officio* and then they have got a sub-committee consisting of 7 members to look after the works.

Mr. Rahimtoola.—Do they personally attend to it?

Mr. Chandorkar.—At times.

Mr. Rahimtoola.—They are men who are not necessarily connected with the institution, but, who are men with a sort of general knowledge?

Mr. Chandorkar.—Yes.

Mr. Rahimtoola.—You have mentioned that Rs. 10,000 has been written off as irrecoverable expenditure. What is it exactly?

Mr. Chandorkar.—Spent on training students.

Mr. Rahimtoola.—Do you mean giving a sort of honorarium?

Mr. Chandorkar.—Spent on materials used for training the students and glass and other materials wasted for their training.

Mr. Rahimtoola.—How many students were you able to train with the amount which is irrecoverable?

Mr. Chandorkar.—About 16.

Mr. Rahimtoola.—You are not bound by any agreement to provide them with posts after they have finished their training?

Mr. Chandorkar.—No.

Mr. Rahimtoola.—After three years in the institution they go out to find work for themselves?

Mr. Chandorkar.—Yes, and we also inform them whenever there is any enquiry for the supply of men by other factories.

Mr. Rahimtoola.—You have stated that you are running your glass division as a semi-commercial proposition. It means that you are able to cover all your expenses?

Mr. Chandorkar.—Yes.

Mr. Rahimtoola.—You are getting your raw materials on the spot?

Mr. Chandorkar.—Quartz we get locally.

Mr. Rahimtoola.—How far from your factory?

Mr. Chandorkar.—There are fields within a radius of 10 miles of our factory.

Mr. Rahimtoola.—You are situated near the Bombay market. Are you able to dispense all your articles in Bombay?

Mr. Chandorkar.—To a certain extent.

Mr. Rahimtoola.—How much out of the 160 tons that you are making?

Mr. Chandorkar.—Say about 25 per cent.

Mr. Rahimtoola.—Look at your answer to question 12. I suppose because your institution is not a commercial concern, you are constantly carrying on experiments in your factory, and you sell whatever articles are turned out by these experiments?

Mr. Chandorkar.—We have got a system like this. We have got separate pots for experimenting purposes. If we succeed in successfully manufacturing a special type of glass, then we use it for blowing purposes, otherwise, we shovel it out.

Mr. Rahimtoola.—If the glass is to your satisfaction, you sell the articles produced?

Mr. Chandorkar.—Yes.

Mr. Rahimtoola.—In Form I, I find there is a marked increase in selling expenses. When you were manufacturing 106 tons it was Rs. 937; when it was 160 the expenditure was Rs. 7,692. How do you account for this big increase?

Mr. Chandorkar.—At that time we were paying very little commission to our agents and customers but now we have to pay it more. At that time what used to happen was that we used to get direct orders from customers, but now owing to keen competition very few orders are coming direct to us, so we have to employ more agents in various places and we have to pay them sufficient remuneration in the form of commission.

Mr. Rahimtoola.—Labour has also increased to a very great extent. Is it due to the number of apprentices having increased? What is it due to?

Mr. Chandorkar.—We have a sort of system like this. We give an increment after two or three years to those who are working for a long time.

Mr. Rahimtoola.—This doesn't mean an increase of hands. From 16,000 it has come to 25,000.

Mr. Chandorkar.—For the year 1928-29 the number of workers has also increased. As the output has increased, the number of labourers too has increased.

Mr. Rahimtoola.—The output has increased very little—56 tons as against Rs. 9,000.

Mr. Chandorkar.—We are paying sufficiently for our labour.

Mr. Boag.—Has the factory always been at Talegaon since it was started?

Mr. Chandorkar.—Yes.

Mr. Boag.—Do you publish accounts?

Mr. Chandorkar.—Yes.

Mr. Boag.—You have given on page 5 analyses of some of your materials. Who made these analyses?

Mr. Chandorkar.—The Director of the Ranade Industrial and Technical Institute, Poona. The analysis of raw fire-clay has been supplied by Messrs. Burn and Company.

Mr. Boag.—From Jubbulpore?

Mr. Chandorkar.—Yes, and the coal analysis from the Government Test House at Alipore. Analyses of sand and lime are made at the Ranade Institute.

Mr. Boag.—Is the sand for which you have given the analysis obtained locally?

Mr. Chandorkar.—No, this is Bargarh sand.

Mr. Boag.—You have not had the local sand analysed?

Mr. Chandorkar.—No.

Mr. Boag.—In answer to question 16 you have given the freight and the miscellaneous charges on these materials, but what is the actual cost of the materials?

Mr. Chandorkar.—For sand the cost at the despatching station is As. 3-6 a maund.

Mr. Rahimtoola.—Where did you make the analysis?

Mr. Chandorkar.—At the Ranade Industrial and Technical Institute, Poona.

Mr. Boag.—That As 3-6 is in addition to that one rupee?

Mr. Chandorkar.—Freight is As. 11-3, and miscellaneous charges As. 4-9. Thus the total price of Re. 1 per maund includes all these.

Mr. Boag.—You mean the price of the article?

Mr. Chandorkar.—Yes.

Mr. Boag.—So that the total is the whole cost?

Mr. Chandorkar.—Yes.

Mr. Boag.—You say that you are now making your own pots?

Mr. Chandorkar.—Yes.

Mr. Boag.—What do they cost you to make?

Mr. Chandorkar.—They are still in an experimental stage.

Mr. Boag.—You have not gone far enough yet to tell us the cost?

Mr. Chandorkar.—Quite so.

Mr. Boag.—In answer to question 45 (b) you say "the gross weight is nearly 2 to 2.2 times the net weight". I don't quite understand the figure.

Mr. Chandorkar.—It is charged on gross weight.

Mr. Boag.—What does this 2 mean?

Mr. Chandorkar.—It is 2 to 2.2. It is exactly double the net weight.

Mr. Boag.—That is 2 to 2.2 times?

Mr. Chandorkar.—Yes.

Mr. Boag.—It is double or more than double?

Mr. Chandorkar.—A little more at times. Generally it is double.

Mr. Boag.—That means to say the weight of your packing material is more than the weight of your glass.

Mr. Chandorkar.—Yes.

President.—The total weight of glass is 1 and the packing is also 1. If it is 100 and 100 the total would be 200. The net weight would be 100.

Mr. Chandorkar.—Yes.

Mr. Hodkin.—In answer to question 5 (a) you say you are experimenting at present on bangles and heat resisting glasses. What exactly are your experiments on bangles? What are you aiming at in your experiments on bangles?

Mr. Chandorkar.—There are certain defects or certain short comings in the present method of working. In the beginning the chemical composition of the glass that is used for bangles to our mind is not good. So we are experimenting as to what sort of composition is suitable for the kind of bangle glass, which will suit the working conditions and also, which can be maintained at any time. The question of fluidity or viscosity has to be studied first. There are certain other technical problems to which have to be studied side by side.

Mr. Hodkin.—Primarily you are concerned with the composition of glass which is advisable?

Mr. Chandorkar.—Yes.

Mr. Hodkin.—With regard to heat resisting glass the same thing applies?

Mr. Chandorkar.—Yes.

Mr. Hodkin.—Do you think it is necessary in the case of heat resisting glass to make this experiment?

Mr. Chandorkar.—Yes.

Mr. Hodkin.—Have they been done elsewhere?

Mr. Chandorkar.—Their results are not open to us and secondly the conditions vary. I mean thermal conditions usually vary.

Mr. Hodkin.—In your furnace you mean?

Mr. Chandorkar.—As compared with improved furnaces in foreign countries.

Mr. Hodkin.—You are trying to develop the heat resisting glass which will suit your furnace?

Mr. Chandorkar.—In the first place in our own furnace as well as for an improved type of furnace later on.

Mr. Hodkin.—Do you think you can develop the heat resisting glass in your furnace?

Mr. Chandorkar.—I think so.

Mr. Hodkin.—You told us that you are getting raw materials within 10 miles.

Mr. Chandorkar.—Yes.

Mr. Hodkin.—Can you tell us exactly where?

Mr. Chandorkar.—It is a barren land.

Mr. Hodkin.—Does anybody else use these materials?

Mr. Chandorkar.—No, only ourselves.

Mr. Hodkin.—You don't know the composition.

Mr. Chandorkar.—It is pure silica.

Mr. Hodkin.—How do you know when it was not tried?

Mr. Chandorkar.—Long ago it was tried and analysed.

Mr. Hodkin.—Do you know what the analysis was?

Mr. Chandorkar.—Yes.

President.—Have you got the analysis?

Mr. Chandorkar.—Yes, not with me just now.

President.—Could you send it to us?

Mr. Chandorkar.—Yes.

Mr. Hodkin.—And the lime too?

Mr. Chandorkar.—Yes, I have given the analysis of lime.

Mr. Hodkin.—The lime analysis that you have given is for local lime?

Mr. Chandorkar.—Yes.

Mr. Hodkin.—You have given an analysis for sand. Is that for Bargarh sand?

Mr. Chandorkar.—Yes. The analysis we have given for lime is local lime.

Mr. Hodkin.—Is it burnt lime?

Mr. Chandorkar.—Yes.

Mr. Hodkin.—Has it been slaked?

Mr. Chandorkar.—Yes.

Mr. Hodkin.—Do you test the composition periodically?

Mr. Chandorkar.—We do.

Mr. Hodkin.—Do you find it varies very much?

Mr. Chandorkar.—Within one or two per cent.

Mr. Hodkin.—Do you make adjustments on your batch composition?

Mr. Chandorkar.—We do.

Mr. Hodkin.—Can you account in this analysis for the very high alumina and iron content which you have got in your sand?

Mr. Chandorkar.—Putting together the percentage of Fe_2O_3 and Al_2O_3 , it is 2.43.

Mr. Hodkin.—How do you account for the fact that the total alumina and iron oxide in your analysis is rather higher than any that we have seen?

Mr. Chandorkar.—The thing is this: when the analysis was made, the sample was not washed and graded.

Mr. Hodkin.—Do you wash the sand in your works?

Mr. Chandorkar.—No.

Mr. Hodkin.—Even in analyses of un-washed Bargarh sand, I have never seen such a high proportion of alumina and iron oxide as in this.

Mr. Chandorkar.—I find that two chemists hardly ever agree.

Mr. Hodkin.—If they are not good chemists.

Mr. Chandorkar.—Even the best chemists do not agree.

Mr. Hodkin.—Not on analyses of this kind.

Mr. Chandorkar.—It may be within your knowledge that Bureau of Standards and Bureau of Mines do not agree.

Mr. Hodkin.—On analysis exactly of the same samples I don't agree.

Mr. Chandorkar.—I would request you to refer to our March, 1931 Journal, page 40, where we have given these figures. Original reference to analysis given in January, 1931, pages 38-39 of the Journal American Cera Society. This point was specially stressed there.

Mr. Hodkin.—As regards soda can you tell me what kind of soda it is?

Mr. Chandorkar.—It is Magadi soda.

Mr. Hodkin.—In your answer to question 22 you say that trials are going on with other foreign clays. German and Japanese. Why are you doing those experiments on those foreign clays?

Mr. Chandorkar.—For the simple reason that we have been often told and we are often reading in the Technical Journals that the German clays are sufficiently refractory. If pots are made out of such clays, they will give a better life.

Mr. Hodkin.—You wish to determine whether it is better to import foreign clays than to use Indian clays.

Mr. Chandorkar.—Not that way. We are studying the problem from a scientific point of view. We are studying the properties of both the foreign and the Indian clays side by side in order to find out the difference between the two kinds of clay and to ascertain what special qualities there are in the foreign clays which make these articles superior and what are the deficiencies in our own clays so that we might improve our clays.

Mr. Hodkin.—You are doing the experiment on foreign clays with a view to comparison.

Mr. Chandorkar.—Yes.

Mr. Hodkin.—In answer to question 34 you say fuel is applied directly as the unit is small. Do you consider it necessary to apply fuel directly on a small unit?

Mr. Chandorkar.—There is no other go for the present.

Mr. Hodkin.—In answer to question 37 you say that your unit is now fairly large.

Mr. Chandorkar.—Yes.

Mr. Hodkin.—Which is the small one and which is the big one?

Mr. Chandorkar.—The present capacity is normally 3 tons. Formerly it was about 1,600 lbs.

Mr. Hodkin.—Do you still consider it small or large?

Mr. Chandorkar.—Sufficiently large.

Mr. Hodkin.—Why don't you apply the fuel in a different manner?

Mr. Chandorkar.—That means additional expenditure.

Mr. Hodkin.—It is only a question of additional expenditure. You don't think you might save the expenditure in that way in course of time.

Mr. Chandorkar.—We are not doing that for the present as we are hand-capped for sufficient funds for the initial investments necessary. That doesn't mean that we are disinclined to do that.

Mr. Hodkin.—Supposing you were to get enough money or have enough money to improve its construction, do you think you would in course of time save that money?

Mr. Chandorkar.—Yes, if the experiment is properly and cautiously guided.

Mr. Hodkin.—In answer to question 39 you say "The furnace itself is crude and wasteful". It certainly is and the question is whether you would not be well advised to try and improve it.

Mr. Chandorkar.—I will explain to you. Sometime back some foreign experts were specially brought to India.

Mr. Hodkin.—What sort of experts?

Mr. Chandorkar.—They were known as Glass Experts.

Mr. Hodkin.—They were glass blowers.

Mr. Chandorkar.—I don't know, they might be. Mr. Elland was taken on as a Glass Expert by the United Provinces Government though he was a bottle blower. Such experts though they constructed the so-called improved type of furnaces could not show better results and therefore Indian manufacturers are rather shy for venturing investments.

Mr. Rahimtoola.—They constructed according to their capacity?

Mr. Chandorkar.—Yes.

Mr. Hodkin.—Their capacity was not very great.

Mr. Chandorkar.—Otherwise people would have gone for better type of furnaces.

Mr. Hodkin.—That is why you say that Indians are forced to fall back on the present type of furnaces, because the capitalists will not expend any more money, because the attempts that were made by glass blowers who knew nothing about furnaces were unsuccessful.

Mr. Chandorkar.—I am glad you are expressing these views at this moment, but formerly those experts were supposed to be the best experts in India. I can cite another instance also—of the Madras Glass Factory of which you might be knowing.

Kandivli Glass Bangle Factory, Kandivli, Bombay.

A.—WRITTEN.

Letter dated the 28th December, 1931.

ANSWERS TO QUESTIONNAIRES.

1. An unregistered firm for private proprietors.
2. Total Indian capital. No directors, two superior managements.
3. Actual work to manufacture commenced on 1st December, 1930.
4. The full capacity of our workmen for the manufacture of bangles is 520.
5. (a) We manufacture only glass bangles.
(b) 36,00,000 pairs of bangles annually.
6. Factory is situated at Kandivli, a suburb of Bombay.
(a) Factory is advantageously situated in consideration of raw materials.
(b) Very far from coal-fields and the place of sand-supplies.
(c) It is in close vicinity to Bombay market.
(d) Labour supply also is fairly good.
7. Specially in our case in close vicinity to our important Bombay markets, labour, sundry articles, and machineries purchased from Bombay thereby saving railway freight.
8. Our products of silky bangles are exactly equal in quality and in some cases even superior to Japanese bangles. Still they do not command the same price but less than foreign. Our products of fancy bangles are nearly equal in quality to those imported from Czechoslovakia and they also do not command the same price. At present due to the sudden difference in exchange rates we fetch a little good price, but we anticipate it to be temporary. The failure of glass industries in India is solely due to no support from Government. The glass industries in an advanced and cultured city like America is even supported by heavy duty on foreign import. The railway freight in India for industrial purpose is simply crushing the trade.
9. We produce bangles throughout the year.
10. The raw materials used are sand, coal, lime, soda, saltpetre, borax and other colouring chemicals.
11. Our annual requirements of raw materials are Rs. 55,340.
12. For producing one ton of glass we require about 1 ton and 225 lbs. of raw materials.
13. Sand, coal, furnace building materials also required monthly for furnace repairs. Sand from the vicinity of Allahabad which is nearly 800 miles from Bombay. Coal from Calcutta nearly 1,200 miles from Bombay. Furnace materials from Jubbulpore nearly 750 miles from Bombay.
14. These materials are transported by railways and re-transported from station by motor lorries to the factory.
15. No royalty paid by us to Government or to any private person.
16. (a) No royalty paid.
(b) Labour for unloading contents of a railway wagon and re-loading the same for transportation to the factory Rs. 10, again unloading the materials from the lorry to the works Rs. 5. Cost of transportation by lorry from railway station to the factory per wagon Rs. 25.
(c) Freight per ton of sand As. 12 per maund and cost per maund of sand at sand fields As. 3. Rate per maund of lime at Katni As. 7, railway freight As. 8 per maund and other transportation charges per wagon to works same as shown above.

17. No concession or special rates allowed for the supply of raw materials by railway companies but day by day they are increasing the same.
18. We are not importing raw materials.
19. Some of the materials now imported can be manufactured in India at an economical cost, provided the manufacturer are supported by Government.
20. There are two most important materials used for the manufacture of glass bangles and they are sand and soda. The former is suitable for our purpose but the latter is unsuitable because the percentage of imported soda is higher than that of the Indian manufactured soda.
21. One of the most important imported raw materials used for the production of our glass is "Soda" and the rest are colouring materials used for the completion of our product, e.g., selenium, cadmium, etc.
22. We do not make our own crucibles, but we import them from Japan. The rate of each crucible of 600 lbs. is Rs. 53. The said crucibles last for a month and even sometimes less.
23. Our furnace materials are obtained from Jubbulpore and we are not aware of their composition. Our furnace lasts for about six months.
24. Even though skilled labourers are employed for the manufacture of glass still personal expert supervision is absolutely necessary.
25. We have no imported labourers but we have trained our Indian labourers under our personal care and attention.
26. To train up new men from the very staff we give them a small monthly remuneration, first start them with light easy work and later on increase their grade according to their ability till they become skilled workmen.
27. To our knowledge the need of skilled labour for manufacturing bangles is necessary and it cannot be replaced by automatic machines. The few machineries that we are now using are also from our own ideas.
28. To save extensive manual labour Government must open out a department of experts for glass industries who can go round all the factories and with the co-operation of the factory owners suggest them to procure such machineries that can facilitate and economise the work and enlarge daily production.
29. The situation of the glass factory must be in a place where the climate should be moderate to enable the workmen to work diligently and willingly.
30. The total wages paid by us per month is Rs. 7,800 and the total number of workmen employed per day are 520.
31. We have provided our workmen brought from abroad free quarters.
32. Principal fuel used in the works is coal and we get the same in sufficient quantity.
33. Our contractor supplies us coal from Bombay at our works by motor lorries at Rs. 20 per ton.
34. The fuel is used in the furnace directly as the same is so constructed.
35. No steam or power is used at our works.
36. For melted glass we require 2 tons of coal and for finished glass-ware $1\frac{1}{2}$ ton only.
37. We are of opinion that our present production is sufficient in comparison with the capacity of our works.
38. For welding bangles we have erected a gas plant which works by aviation petrol. An oil engine is also used for shaping and cutting bangles and the rest is handwork.
39. We are of opinion that our machineries and other equipments and the process of manufacture are no doubt up-to-date. As regards the foreign competition we can say that only due to the present exchange difference we are in a position to compete foreign import; but before that we not only

failed to compete them, but we had actually to close down certain departments.

40. We have lately erected a gas plant for welding purpose and we are satisfied with its results.

41. We have not visited competing countries and so we have no idea of the process of manufacture; but from our experience we only presume it must be nearly the same but on up-to-date and refined style in some department only.

42. We have an oil engine made in England, a gas plant and few machineries for manufacturing cardboard box making and they are made in Germany. Their parts are imported and not made in India.

43. The total Indian bangle production per day is more than 10,00,000 dozen pairs. Regret we have no idea of other glassware.

44. The principal bangle markets are Bombay, Calcutta, Ferozabad (U. P.) and Madras. The respective distances from Bombay are about 1,200, 1,000 and 1,000 miles.

45. (a) The respective railway freight from Bombay to Calcutta, Madras and Ferozabad are Rs. , Rs. , Rs. , respectively, per maund. The freight over imported glass bangles is more advantageous than the inland railway freight.

(b) The inland railway freight is charged on gross rate, i.e., including packing materials. The normal weight of the actual contents of bangles is one maund 22 seers and the weight of packing materials is 16 seers.

46. The freight per case of bangle imported to Bombay is Rs. and the freight per case from our factory to Bombay market is 7 annas.

47. To our knowledge there is an immaterial consumption of glass bangles in foreign countries.

48. Japan and Czechoslovakia are the only two foreign countries which are keenly competing Indian manufactured bangles.

49. Our factory in Kandivli is only of one year standing and we can give you the prices of foreign manufacture for this period only. When we first introduced our manufactured bangles the Japanese immediately reduced their rate per dozen from As. 1-6 to As. 1-1½. The Czechoslovakia brought down their rates from As. 6 to As. 3-6 per dozen pairs. The respective foreign importers also reduced their rates at the same ratio for other kinds of bangles. Regret we are not aware of c.i.f. prices and custom duties, etc., for imported bangles.

50. Regret we have no idea.

51. Our products are not purchased by Government.

52. To our knowledge we have to pay duty on plant and machineries imported whereas in imported countries the same are locally manufactured that means no duty to be paid. Labour is concerned there is no gain to Indian industries. Indian labour is not so quick as foreign though it is cheaper than foreign and so it eventually comes to the same. Materials not favourable as we have to pay heavy freight for inland articles and for foreign materials, we have to pay duty which the factory owners of imported countries have not to pay. Climatic conditions are suitable. Freight and customs duties on raw materials not favourable to Indian industries.

53. Before we started our factory in India the importers were selling their products at a distinct profit of more than 25 per cent. but no sooner our articles were introduced in the Bombay market their prices were reduced to 25 per cent., just because our products are equal in quality and colour to theirs.

54. (a) No lease and concessions.

(b) Land and building rent Rs. 125 per month. Collector-tax Rs. 12½ annually. Municipal-taxes Rs. 325 annually.

(c) Building construction Rs. 50,000.

(d) Plant and machineries Rs. 12,000.

(e) Miscellaneous assets Rs. 20,000.

55. We assume 10 per cent. total depreciation since the commencement of the work.

56. If a new factory is to be erected now the expenditure will be about 25 per cent. more due to increase in duty and difference in exchange.

57. Ours is a lately opened private concern.

58. Please refer answer 57.

59. No reserve fund.

60. Any amount is required to extend this industry and there is no limit to extension.

61. We have filled in the forms.

62. The breakage including wastage is about 7 per cent. Ours is a new concern, but we are regularly trying to make progress in every department of work.

63. The only variation in expenditure in class of bangles is due to the increased rates in raw materials on account of increase in duty and difference in exchange.

64. We have not presented our books of accounts in Income-tax Office as ours is a fresh concern.

65. The average stock of raw materials is about Rs. 6,000. Coal Rs. 2,000, finished goods about Rs. 6,000 to 7,000 and outstanding about Rs. 4,000.

66. We have no head office but we pay 3 per cent. discount and 5 per cent. commission to our Bombay agents.

67. (a) Our industry does not possess natural advantages such as an abundant supply of cheap raw materials, cheap power and cheap labour. We have no doubt an advantage of a large Home market.

(b) We do claim that without the sufficient help of Government protection our industry will be in the same wretched state and the chances of developments are *nil*.

(c) We must once again forcibly and candidly admit that without protection this industry has absolutely less chances of making any gain and this naturally means that it can never face foreign competition.

68. (a) As we have mentioned above a candid example that an advanced city like America is even upto the time we are writing is justly protected by a heavy duty to foreign imports of more than 100 per cent. why should India which in comparison is a much less advanced city be not equally protected?

(b) We suggest that a protection department be opened out headed by glass experts to help and guide the industrialists and that the owners of the factories be forced to modify, expand and better their industry by providing such plants that in near future they may not need any further protection. For doing this at least 10 years' time must be given.

69. Other industries will not be effected.

FORM I.—Statement showing the total expenditure incurred at works on the production of glass during the past five years.

	1930-31.
	Rs.
I.—Raw materials—	
(a) Sand	6,000
(b) Soda ash	11,000
(c) Lime	600

I.—Raw materials— <i>contd.</i>	1930-31.
	Rs.
(d) Crucibles	5,088
(e) Refractory materials for furnaces	10,000
(f) Other materials	10,000
II.—Works labour	93,600
III.—Power and fuel	29,600
IV.—Supervision and office establishment	8,500
V.—Current repairs and maintenance	3,800
VI.—Packing	36,980
VII.—Selling expenses	27,440
VIII.—Miscellaneous, <i>e.g.</i> , stationery, rent, taxes and other general charges	9,600
Total .	<u>2,52,208</u>

Total production in tons of glass for the year—

(a) Melted	} We produce finished glass only 540 tons per year.
(b) Finished	

FORM II.—Statement showing the works expenditure per ton of each class of glassware during the past five years.

1. We produce only one class of glassware and our statement for Form II is the same as in Form I.

THE KANDIVLI GLASS BANGLE FACTORY.

B.—ORAL.

**Evidence of Messrs. FRAMROZ N. KATRAK and FRAMROZ
C. SIDHWA, recorded at Bombay, on Monday, the
18th January, 1932.**

President.—Gentlemen, you represent the Kandivli Glass Bangle Factory?

Mr. Katrak.—Yes.

President.—From the statement that you have put in, I gather generally your process of manufacture is to melt the glass in pot furnaces, then wind the glass on the spiral and then slit it across: then your welding is done by gas which you make with petrol. Then all the power that you require in subsequent stages for cutting, polishing and so on you derive from an oil engine. That is roughly the process of manufacture?

Mr. Katrak.—Yes.

President.—I should like to examine the statement of expenditure that you have put in. If you look at Form I that you have sent in, I take it this statement represents the total output of 540 tons?

Mr. Katrak.—Yes.

President.—Now, the first item is sand for which the total expenditure that you show is Rs. 6,000?

Mr. Katrak.—Yes.

President.—I gather from your replies to the questionnaire that your sand costs at Kandivli 15 annas a maund?

Mr. Sidhwa.—Yes.

President.—That is little over Rs. 25 a ton?

Mr. Sidhwa.—Yes.

President.—At that rate Rs. 6,000 represents about 240 tons of sand yearly?

Mr. Katrak.—Yes.

President.—The point that beats me is how from 240 tons of sand you can make 540 tons of glass?

Mr. Katrak.—Besides sand there are certain quantities of soda ash, lime and so on used.

President.—The reply is that along with 240 tons of sand a certain quantity of soda ash and lime are used. But if you have 240 tons of sand and if you use the ordinary proportions of soda ash and lime to it you would not get more than, say, $240 \times \frac{3}{4}$ of sand. You can't possibly get more if you use lime and soda. I will put another question which might make the position simpler. In the statement that you put in, is there any broken glass the cost of which is included in this total expenditure statement? In that case of course with 240 tons of sand you could get more.

Mr. Katrak.—No. Whatever I get in the shape of waste is used.

President.—Supposing for example you produce 540 tons of glass and assume 25 per cent. as the breakage.

Mr. Katrak.—We assume 7 to 10 per cent.

President.—Take it at 10 per cent. If your annual output is 540 tons of glass, the amount of cullet that you get at the works cannot exceed 54 tons. If you added 54 tons to your total production it might increase to about 300 tons, not more than that. There is still a big margin of 240 tons which has to be accounted for and my suggestion is that the statement of expenditure that you give does not represent an output so large

as you give here. To make the matter simple probably the best thing to do would be this: on your present practice at the factory you use every day so much sand, you use so much soda ash, you use every day so much coal. You take all the figures. Every day you make so much melted glass, you make so much bangles. On that basis we may be able to work out an approximate estimate of the costs. Will you be able to give that? That perhaps would give us more accurate results. Let us take sand first. What quantity of sand do you use every day per furnace of 8 pots that you are using now?

Mr. Katrak.—(Hands in statement.)

President.—Thirty-two maunds of sand a day, that is equal to Rs. 30?

Mr. Sidhwa.—That is the quantity we use when we first start.

President.—Supposing you are working your furnace, let us say, right through the year to capacity, then what is likely to be the consumption, lime, soda ash and these other materials. On what system do you work your pot furnace?

Mr. Sidhwa.—We replace our pots practically every month. Every six months we renovate the furnace completely.

President.—Would you be able to give us figures for a month because if you do it on a daily basis it might not lead to a very accurate result. Your furnace works continuously for a month with the same pots and at the end of the month you replace the pots?

Mr. Katrak.—Yes.

President.—You won't be able to give it on a monthly basis?

Mr. Katrak.—No.

President.—Let me see what these figures mean. Within what period do you put 32 maunds of sand into your furnace?

Mr. Katrak.—At the beginning of the month?

President.—Yes and 14 maunds of soda, 2 maunds of borax and one maund of other colouring materials.

Mr. Katrak.—Yes.

President.—These are put into the furnace at the beginning?

Mr. Katrak.—Yes.

President.—Subsequently during that month do you put any more into the furnace?

Mr. Katrak.—No.

President.—Therefore this is your consumption for a month?

Mr. Katrak.—Yes.

President.—This 32 maunds of sand that you put into the furnace at the time when you are starting the work just fills the crucibles in the furnace?

Mr. Katrak.—Yes.

President.—When the furnace is heated and this amount of melted glass is formed in the furnace, then the crucibles are emptied and the glass is gathered. When that stage is reached, the crucibles are refurnished with materials, am I right?

Mr. Katrak.—Yes.

President.—Assuming the pots remain unbroken through the period of a whole month, then you fill your pots at the beginning of the month. When do you do the next filling, within what time from the beginning of operations?

Mr. Katrak.—Do you mean how many hours does it take to melt the glass?

President.—Not merely to melt the glass, but to empty it.

Mr. Katrak.—It requires 24 hours to melt the glass.

President.—In 24 hours it melts. Within what time from the completion of the melting, are you able to empty the pots?

Mr. Katrak.—12 hours.

President.—In 36 hours the melting is done and the glass is emptied out of the furnace.

Mr. Katrak.—Each pot is emptied in $1\frac{1}{2}$ hours.

President.—If that is a correct statement that each pot takes $1\frac{1}{2}$ hours to empty the melted glass in one of the 8 pots in your furnace, then obviously the time that you take to empty 8 pots is $8 \times 1\frac{1}{2}$ or 12 hours.

Mr. Katrak.—When we first empty the first crucible, it takes us only $1\frac{1}{2}$ hours. But I want to tell you that as soon as that is finished, we refill it.

President.—I shall make allowance for that. Supposing you empty all your crucibles in the course of 12 hours, let us assume while you are emptying the crucibles you are not doing any refilling.

Mr. Katrak.—Yes.

President.—What I am trying to do is to calculate on the basis of these figures, what is likely to be the monthly consumption of these materials assuming your furnace is working to capacity. On your statement it takes about 24 hours for the materials to form into melted glass. Supposing no refilling was done in the meanwhile it would take about 12 hours to empty the furnace. Therefore on that basis during the month only you can use 20 times these materials, but the point arises while you empty some pots, it is possible to refill other pots. Now I take it that if it takes you 12 hours to empty these pots, it will take you 6 hours to do the emptying. It takes you 24 plus 12 hours if there is no refilling done. If there is refilling done, it would be possible to start the furnace again within about 30 instead of 36 hours.

Mr. Katrak.—The whole operation is finished in 24 hours.

President.—I leave the question of materials for the time being except to raise one point as regards colouring materials which you generally use.

Mr. Katrak.—I shall send you that information later on.

President.—You can send me the confidential note (which the Board only will see) giving me the quantity of each of the colouring materials used per ton of glass and the proportion of each colouring material. Take the predominant colours, say four or five and give us all the colouring materials used per ton for each colour. I can assure you that the information will be kept strictly confidential.

Mr. Katrak.—I shall send you the information afterwards.

President.—Now I shall get on to the question of price that you realise. I find it difficult to get any comparable prices worked out, that is to say the price of Indian bangles and the comparable price of imported bangles. What is the present price of ordinary Japanese *reshmi* bangles?

Mr. Katrak.—1 anna 4 pies.

President.—Is that the wholesale market price?

Mr. Katrak.—That is the wholesale price.

President.—It is 1 anna 4 pies per dozen pairs?

Mr. Katrak.—Yes.

President.—What colour is that?

Mr. Katrak.—All colours.

President.—Approximately what is the weight of a dozen pairs of this kind of *reshmi* bangles?

Mr. Katrak.—There are 9 sizes of bangles.

President.—Take an intermediate size.

Mr. Katrak.—1,000 single bangles will weigh 7 lbs.

President.—1,000 single bangles are equal to about 83 dozens. That would be about 41 dozen pairs.

Mr. Katrak.—Yes.

President.—If 41 dozen pairs weigh 7 lbs., then one dozen pairs will be approximately $\frac{1}{4}$ th of a lb., that is 2 $\frac{1}{2}$ oz.

Mr. Katrak.—Yes.

President.—I will tell you what our difficulty is in working out the cost of making one ton of glass and then converting it into bangles. Unless we know how many bangles are represented by one ton of glass, it is impossible for us to convert the figures on the same basis on which prices are quoted in the market. Can you ascertain for us, Dr. Patel, whether this 7 lbs. which Mr. Katrak gives as the weight of 1,000 single bangles of intermediate size is the weight of Indian bangles or Japanese bangles?

Dr. Patel.—Whether it is Indian bangles or Japanese bangles, the weight is the same.

Mr. Katrak.—Yes.

President.—We have with us an original invoice giving particulars about a certain shipment of Japanese *reshmi* bangles. From that, I find there are altogether 33,720 dozen pairs. The total freight charged is 120.75 yens. The invoice states that the freight per ton is 10 yens. Therefore the total weight of that consignment is 12 tons, is it not?

Mr. Katrak.—Yes.

President.—If it is 12 tons on the whole, and you take $\frac{1}{4}$ th of the gross weight as the weight of the packing materials, you get 10 tons as the weight of the bangles. Taking 10 tons as the weight of 33,720 dozen pairs, I find it comes to 1 $\frac{1}{2}$ dozen pairs per lb.

Dr. Patel.—I shall actually weigh the bangles and let you know the weight.

President.—Supposing you are trying to find out the weight of a gross of bangles, will you take whatever happens to be the typical commonest size and take a gross and weigh it or will you try to make up one gross out of say half a dozen typical varieties?

Dr. Patel.—I shall weigh them separately and find out the weight. I shall also weigh the packing materials and send you the figures.

President.—Would you also weigh the imported bangles because we want to have the weights compared?

Dr. Patel.—Yes.

President.—Suppose, for argument's sake, I find that a gross weighs, say, 10 lbs. in order to get at the quantity of bangles made out of one ton of melted glass the calculation would be like this: you give me the weight and assuming the weight is 10 lbs. I have to add breakage to that. Supposing the breakage comes to 2 lbs. then out of 12 lbs. of melted glass I can say I get one gross of bangles.

Mr. Katrak.—I am sorry I don't follow.

President.—What I am trying to get at is this. The only thing I can get in the way of cost is the cost per ton of glass. I want to know from one ton of glass what quantity of bangles can be made. If a particular class of bangles weighs 10 lbs. to a gross, then I take 10 lbs. and a certain proportion as wastage and the two together would give me the quantity of melted glass from which the bangles are made.

Mr. Katrak.—That would be all right.

President.—If you take *reshmi* bangles, is there considerable difference in price between one class of *reshmi* bangles and another?

Mr. Katrak.—There are various qualities and the prices are different.

President.—Within what limits do the prices vary?

Mr. Katrak.—I can't say; there are nine different sizes.

President.—They have different prices, have they?

Mr. Katrak.—Not all the nine sizes. Sizes $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, $1\frac{1}{2}$, $1\frac{1}{2}$, are grouped as small size, and then $1\frac{1}{2}$, 2, $2\frac{1}{4}$, $2\frac{1}{2}$, $2\frac{3}{4}$, $2\frac{1}{2}$, are grouped as bigger size, and the difference in price between the smaller and bigger groups is about one pie.

President.—Of all these sizes that you have mentioned, which size represents the largest consumption?

Mr. Katrak.—2" bangles have the biggest sale.

President.—Is it your impression that 2" is the size for which there is the biggest demand in this side of India?

Mr. Katrak.—2 to $2\frac{1}{4}$ " bangles.

President.—2" may be taken as typical?

Mr. Katrak.—Yes. If 100 bangles of the two sizes are sold I am able to sell 100 of each size.

President.—They represent more or less the same proportion of demand?

Mr. Katrak.—Yes.

President.—Is there a large quantity of 2" bangles imported from Japan?

Mr. Katrak.—In the Punjab there is bigger demand for 2" to $2\frac{1}{4}$ " bangles.

President.—If you go into the Bombay market do you find large quantities of Japanese *reshmi* bangles of 2" size?

Mr. Katrak.—Bombay importers are the importers for the whole of India so I can't say anything about the requirements of the whole of India, but if we restrict our question to the Bombay Presidency, Japanese 2" bangles are to be found in large quantities in the Bombay market.

President.—Can you tell me at present what is the price of Japanese *reshmi* bangles of 2" size?

Mr. Katrak.—We can't say that.

President.—Can you find that out for us. Dr. Patel, if you have access to the market you can find out the ruling prices in the Bombay market to-day or any day you like: that would be quite enough for us. I would like to get the prices of all these leading varieties, particularly 2" size.

Mr. Patel.—I will do that for you.

President.—May I put another question? Supposing the Kandivli Glass Bangles Factory were making entirely 2" size *reshmi* bangles how many toras of 2" *reshmi* bangles do you expect to get out of one maund of melted glass?

Mr. Katrak.—About 30 to 35 tons to a maund of glass of 2" size approximately.

President.—Is there any preference shown by people in this part of the country for any particular colour of bangles?

Mr. Katrak.—The preference is more or less according to community and also liking for particular colours for particular seasons of the year.

President.—Take, say, the preference shown by Hindu women?

Mr. Katrak.—Red, yellow and sulphur colour.

President.—That is the preference shown by the Hindu community?

Mr. Katrak.—Yes.

President.—What is the preference shown by the Moslem community?

Mr. Katrak.—All colours.

President.—Moslems have no particular reference for colours.

Mr. Katrak.—Dark green. Everything except blue.

President.—When a merchant in this part of India orders a consignment of bangles from abroad exactly as he specifies the sizes of the bangles that he wants, does he also specify the colours?

Mr. Katrak.—He does.

President.—Is it possible for you to say generally for which colour there is generally the biggest demand?

Mr. Katrak.—Amber and yellow.

President.—Generally there is a very large preference shown for red bangles?

Mr. Katrak.—Red and amber. Red predominates.

President.—Am I right in thinking—you need not disclose the trade secrets—that it costs a good deal more to make red bangles than other colours?

Mr. Katrak.—Red bangles cost the most.

President.—That is to say the kind of colouring materials which you require for making red bangles are the expensive materials?

Mr. Katrak.—Yes and the next is amber and sulphur colour.

President.—Not nearly so expensive as the red colour.

Mr. Katrak.—There is a slight difference. The cost of colouring materials for the manufacture of amber and yellow bangles is slightly lower.

President.—Supposing we are trying to find out the cost of the Indian manufacturer making bangles generally, shall we be correct in assuming that about 50 per cent. is red?

Mr. Katrak.—That is right, more than 50 per cent.

President.—We can proceed on the basis of about 60 to 65 per cent. of the bangles made by a manufacturer in India.

Mr. Katrak.—The proportion is 65.

President.—That is two-thirds.

Mr. Katrak.—One-third all colours and two-thirds would be red bangles.

President.—Is that so throughout the country?

Mr. Katrak.—Yes.

President.—I want to know a little more as to how packing is done. Generally in big cities like Bombay or Poona, I suppose the person who buys bangles would like to have them packed on little paper boxes.

Mr. Katrak.—They want cardboard boxes.

President.—Generally out in the up-country and rural markets you find these bangles suspended on a thread.

Mr. Katrak.—In their factory they do all the packing similar to Japan and Czechoslovakia whereas Ferozabad people send them in bunches.

President.—The impression I have gathered is that manufacturers of bangles in Calcutta and Bombay pack their bangles in cardboard boxes while manufacturers up-country generally sell them in bunches.

Mr. Katrak.—That is right.

President.—Cardboard packing is a very expensive item?

Mr. Katrak.—A little expensive.

President.—That is to say if I do not pack my bangles in boxes and if I sell them in bunches, my cost might be almost 1/20th of the cost of a person who tries to pack his bangles in boxes, taking simply the packing item. Let me put it this way. If it costs me Rs. 100 to pack a certain quantity of bangles in the form of bunches, it will cost me Rs. 2,000 to pack them in cardboard boxes. Supposing I pack the bangles in bunches, what will be the packing charge?

Mr. Katrak.—I don't know.

President.—Instead of Rs. 36,000, it would have been Rs. 2,000 to Rs. 3,000.

Mr. Katrak.—We can't say as we have not done it.

President.—Don't you agree that it would be considerably lower?

Mr. Katrak.—Yes.

President.—Do you find that the red colour 2" bangles which you manufacture generally fetch in the market a lower price than the same size and colour of imported bangles?

Mr. Katrak.—Our bangles fetch a lower price than the Japanese bangles.

President.—How much? If, for example, the Japanese bangles which cost one anna to a dozen and supposing you take the same size and colour of *reshmi* bangles, what kind of price would you get?

Mr. Katrak.—The difference between the two is one pice.

President.—So there is a difference of 3 pies. It is very nearly 20 per cent. less.

Mr. Katrak.—Yes.

President.—Have you ever considered the question of beads and false pearls?

Mr. Katrak.—About 20 years ago I tried to manufacture beads, etc., but I was not successful. So I dropped the idea.

President.—I take it that with the kind of equipment in your factory it is possible to make beads and false pearls with slight extensions.

Mr. Katrak.—Yes after buying some machinery.

President.—Is it your proposal that if the Board decided to grant protection to bangles that protection should be extended to beads or should the beads be left out for the time being?

Mr. Katrak.—It would be necessary to put a protective duty on beads.

Mr. Rahimtoola.—But you don't manufacture beads?

Mr. Katrak.—There are people who manufacture that.

Mr. Rahimtoola.—Is there any one who manufactures beads in India?

Mr. Katrak.—There is.

Mr. Rahimtoola.—Do you know the name?

Mr. Katrak.—I shall send you the name. He also is not successful.

Mr. Rahimtoola.—Where do they come from? I mean the beads.

Mr. Katrak.—Coming from Austria and at present from Japan also.

President.—There is just only one other point that I propose to ask you with regard to selling expenses. The figure that you show in your statement of expenditure of selling expenses, does that include all discounts and commission by you to your Agents?

Mr. Katrak.—It includes commission, cartage, travelling and godown.

President.—Everything is included there except railway freight?

Mr. Katrak.—Cartage means from Kandivli to Bombay.

President.—It includes all your selling expenses up to Bombay.

Mr. Katrak.—Yes.

President.—Freight to Bombay and all discounts and commission?

Mr. Katrak.—Yes.

President.—Is that your usual practice to sell f.o.r. Bombay?

Mr. Katrak.—Yes, ever since we started.

President.—Supposing you are selling your bangles in some other market south of Poona, in that case what is your practice? You sell them f.o.r. works.

Mr. Katrak.—We give free delivery at the nearest railway station. Kandivli has not got a goods yard.

President.—Supposing you are sending your goods to Sholapur?

Mr. Katrak.—We have not done so far.

President.—To what other important centres have you sent your bangles?

Mr. Katrak.—When we send goods, we give free delivery at the next station from Kandivli.

President.—If you sell up-country, you would generally sell f.o.r. Borivli?

Mr. Katrak.—If the goods are going on the Bombay, Baroda and Central India Railway, we give free delivery at Borivli, whereas if the goods are going on the Great Indian Peninsula, we give free delivery at Dadar.

President.—In the case of sales to Bombay, it includes transport expenses from Kandivli to Bombay. In the case of shipments abroad it includes the cost of transport from Kandivli works to the nearest railway station?

Mr. Katrak.—Yes.

Mr. Rahimtoola.—You have commenced manufacturing bangles in Bombay or in the suburb of Bombay about a year ago?

Mr. Katrak.—Just a year ago.

Mr. Rahimtoola.—Where were you working before?

Mr. Katrak.—At Firozabad.

Mr. Rahimtoola.—For how many years were you working there?

Mr. Katrak.—27 years.

Mr. Rahimtoola.—What is the reason of your coming to Kandivli to open a factory? Is it more economical to work here than at Firozabad?

Mr. Katrak.—I had to incur loss at Firozabad.

Mr. Rahimtoola.—The reason for your shifting from Firozabad was that you had lost money there?

Mr. Katrak.—Yes, and we wanted to be near a big market.

Mr. Rahimtoola.—You wanted to be near a favourable market?

Mr. Katrak.—Yes, that is the chief point.

Mr. Rahimtoola.—You preferred to come to Bombay side because of the market?

Mr. Katrak.—Yes.

Mr. Rahimtoola.—I take it that you are able to sell the goods that you produce in your factory.

Mr. Katrak.—Yes.

Mr. Rahimtoola.—You are able to do that without much difficulty?

Mr. Katrak.—There is difficulty, but with the help of big merchants, we are able to sell our output fairly easily.

Mr. Rahimtoola.—The total production per day in India according to you is 10,00,000 pairs of bangles.

Mr. Katrak.—That is a rough calculation.

Mr. Rahimtoola.—That calculation as I understand it is based on your 30 years experience in this line?

Mr. Katrak.—Yes.

Mr. Rahimtoola.—I want to know whether all kinds of bangles that are made in India are included in this estimate—not only one class of bangles but all the classes?

Mr. Katrak.—It is the total output of all the factories in India that are manufacturing bangles.

Mr. Rahimtoola.—In your reply to Question 8, you are complaining about the railway freight which you say is doing harm to your industry. Will you explain what you mean by that? What is your real difficulty in the matter of freight? You say that the railway freight is crushing the trade. I should like to know what the present position is and what your suggestions are to remedy it?

Mr. Katrak.—Supposing we buy an article worth 3 annas, we have to pay a railway freight of 12 to 13 annas.

Mr. Rahimtoola.—What is that article?

Mr. Katrak.—Sand in the chief thing.

Mr. Rahimtoola.—Is it 3 annas a maund?

Mr. Katrak.—Yes.

Mr. Rahimtoola.—That must be due to the distance? What is the distance?

Mr. Katrak.—800 miles or so.

Mr. Rahimtoola.—Then, it is undoubtedly due to the distance between your factory and the place wherefrom you get your sand?

Mr. Sidhwa.—I shall explain to you what we mean. Supposing we order out a case of something from Japan or Czechoslovakia we pay Rs. 3 as freight on that one case, though the distance is many times more than the distance from Allahabad to Kandivli.

Mr. Rahimtoola.—You are talking of sea freight. I am talking of railway freight.

Mr. Sidhwa.—I am pointing out to you the difference in distance between the two cases.

Mr. Rahimtoola.—That is a different proposition altogether. In reply to Question 20, you say that you have used Dhranghadra soda ash?

Mr. Katrak.—We have tried that.

Mr. Rahimtoola.—You have found it unsuitable for your purposes?

Mr. Katrak.—Yes, because the percentage of soda in the Indian manufactured article is much less than in the imported.

Mr. Rahimtoola.—Has the use of Indian soda affected your finished article?

Mr. Katrak.—Yes, it has.

Mr. Rahimtoola.—You are not able to produce the same quality?

Mr. Katrak.—Quite so. The quality differs. I may say here that there is no comparison between the imported soda and the Indian soda.

Mr. Rahimtoola.—There are two qualities which are coming?

Mr. Katrak.—Yes, but we use Crescent brand.

Mr. Rahimtoola.—Do you find that the Dhranghadra soda ash cannot be compared with the Crescent brand?

Mr. Katrak.—No, it cannot be compared.

Mr. Rahimtoola.—What is the quantity of Indian soda ash which you have used?

Mr. Katrak.—10 or 12 bags.

Mr. Rahimtoola.—Only for experimental purposes?

Mr. Katrak.—Yes.

Mr. Rahimtoola.—That was when you were in Firozabad?

Mr. Katrak.—No, but in Kandivli.

Mr. Rahimtoola.—Have you got the soda ash analysed?

Mr. Katrak.—No.

Mr. Rahimtoola.—You have not been able to find out the reason except that from experience you find that the quality is not satisfactory?

Mr. Katrak.—Quite.

Mr. Rahimtoola.—You are spending as much as Rs. 93,600 on labour. How much of that is skilled labour?

Mr. Katrak.—210 men form our skilled labour.

Mr. Rahimtoola.—Out of Rs. 93,600, what is the amount paid to these 210 skilled men?

Mr. Katrak.—I shall have to work it out.

Mr. Rahimtoola.—As regards your reply to Question 24, what is the expert supervision required over and above your skilled labour?

Mr. Katrak.—That would be my personal expenses.

Mr. Rahimtoola.—It does not involve any additional money?

Mr. Katrak.—No.

Mr. Rahimtoola.—You simply sit there and supervise the whole work?

Mr. Katrak.—I have to be all the time on my legs. I am a working partner and I am given a monthly allowance.

Mr. Rahimtoola.—Is that included in Rs. 93,600?

Mr. Katrak.—It is not included in works labour.

Mr. Rahimtoola.—It is included in Rs. 8,500 which is called Supervision and office establishment.

Mr. Katrak.—Yes.

Mr. Rahimtoola.—From your reply to Question 16 (b) I find that you are paying as much as Rs. 40 on unloading and other transport charges and still you find it remunerative?

Mr. Katrak.—Besides the railway freight, we pay that much, because the nearest railway yard is about 2 miles away from our factory.

Mr. Rahimtoola.—My point is this. There is the difficulty of railway freight to which you have already referred. Over and above that, you are paying Rs. 40 per wagon and still you are able to manufacture and sell your stuff fairly easily. That means you don't find any difficulty in selling your glass bangles that you manufacture?

Mr. Katrak.—We send our bangles by our own motor lorries.

Mr. Rahimtoola.—It costs you money to maintain these lorries?

Mr. Katrak.—It does.

Mr. Rahimtoola.—I don't quite follow your contention that railway freight is crushing you when you are able to incur so much expenditure over and above the freight.

Mr. Katrak.—Selling and making a profit are two different things.

Mr. Rahimtoola.—Are you selling at a loss now?

Mr. Katrak.—We are. I have spent nearly 30 years in this industry and have not made a single pie. That shows that we have been doing at a loss.

Mr. Rahimtoola.—In spite of the fact that you have incurred loss I suppose you still believe in the future of the industry?

Mr. Katrak.—Once in five or ten years we have a chance.

Mr. Rahimtoola.—You say that having regard to the present surcharge you are doing fairly well.

Mr. Sidhwa.—That is temporary. We were doing fairly well on account of the surcharge and the exchange.

Mr. Rahimtoola.—In answer to Question 26 you describe the way in which untrained men get skilled. Will you tell me what is the period of apprenticeship in the manufacture of glass bangles?

Mr. Sidhwa.—That depends on the ability of the man. It may take six months; but it may take two years to be perfect in all work; that is to be a really skilled man in all branches of the industry.

Mr. Rahimtoola.—Look at your answer to Question 39. What is the actual department which you closed down owing to competition? You did not close the whole factory?

Mr. Katrak.—No. The Japanese were cutting prices. As soon as we started selling our goods in the market they began to cut their prices and so we had to stop the manufacture of the very best kinds of bangles.

Mr. Rahimtoola.—One question I would like to ask and that is with reference to your answer to Question 67 (a). You say "Our industry does not possess natural advantages such as an abundant supply of cheap raw materials, cheap power and cheap labour. We have no doubt an advantage of a large Home market". I think you have not understood the question properly. This is one of the three conditions which the Fiscal Commission laid down. It is not the question of cheapness but the availability of labour, raw materials and power in this country.

Mr. Sidhwa.—They are available but the railway freights make them expensive.

Mr. Rahimtoola.—That is a different question. By putting this sort of answer you are making the position of the Tariff Board difficult in regard to the question of grant of protection.

Mr. Sidhwa.—The materials are available but railway freight makes it expensive. However I would like to make a change in the statement in this form.

Mr. Boag.—There is one point I want to raise with regard to your answer to Question 16 (b). You mention Rs. 40 as the cost of transporting raw materials from the railway station to the factory. In the next answer you give your freight and cost of sand at 15 annas a maund. How many maunds does a wagon contain?

Mr. Sidhwa.—Nearly 500 maunds.

Mr. Boag.—And Rs. 40 is distributed over 500 maunds?

Mr. Sidhwa.—Yes.

President.—Have you ever noticed with regard to bangles the practice of selling wholesale by weight. Are bangles ever sold wholesale by weight instead of on the basis of a gross?

Mr. Katrak.—Never.

Messrs. Joosub Peermohomed & Co., Bombay.

Letter dated the 12th February, 1932.

With reference to the interview of our representative with you on the 3rd instant we have to place before you the following facts about our factory as desired by you.

We bought the factory for manufacturing glass imitation wax pearls in Japan and we brought the owner of the factory with his assistants to fix up the factory and put it into working condition here in Bombay.

The total cost of the machinery and putting up the factory in working order amounted to nearly Rs. 35,000. We began working the factory in April, 1931, with the help of 5 Japanese workers (including the original owner) one of whom was an expert and the other 4 were skilled labourers. The monthly salary of all these Japanese workers amounted to Rs. 840. We pay a rent of Rs. 220 per month for the premises and we pay a salary of Rs. 240 to the regular Indian employees. The monthly wages paid to the workers—all of them work on piece work basis—amount to Rs. 500 per month. All the Japanese except one went away in the month of October. One is here now but he will be sailing to Japan on the 26th instant. The process of manufacturing pearls is as follows:—

Glass is melted in small crucible which can take up 4 lbs. of glass. The melted glass is then taken up on a glass tube and blown to the proper form. With a quick stretch of hand this is put into proper mould and blown again where it is transformed into globular tubes. These globular tubes are then filled with proper chemicals to give them lustre. This operation is carried out by putting proper chemical solution in a tray and then sucking the liquid through the tubes. The tubes filled with this liquid chemical are kept at a low temperature for nearly ten minutes, the cold being supplied by means of ice. The tubes are thereafter removed from the cool place and put into a centrifugal machine where the chemical solution spreads uniformly at the same time the excess of the liquid is removed. Then they are put into a wax bath to fill the tubes with paraffin wax. Needles are then pierced through the entire tubes and thread drawn through it. Beads are then cut, sorted and formed into bunches.

Our raw materials are glass, a chemical solution that gives good lustre, paraffin wax and threads. Out of these at present, due to the fact that our factory has been in the hands of the Japanese, glass and the chemical solution are being imported from Japan; wax and threads are obtained locally and are of Indian make. We have found that Indian glass can be used for this purpose and as soon as the one Japanese who is at present working in the factory goes we will start experimenting and manufacturing false pearls from Indian glass. As for the chemical, we will have to import same from Japan; but we are now investigating into the matter and trying to find out as to what this chemical is and how to get it made here. From this you will see that most of our raw materials are obtainable locally and of Indian make.

The capacity of our factory is 50 cases monthly each case containing 500 bunches. The total consumption of false pearls in India is nearly 50 cases monthly, but owing to the present depressed condition of the market we are able to sell 30 cases per month.

Our goods are sold at lower rates than Japanese goods, because they are considered due to sentimental reasons to be inferior to Japanese.

From this it will be seen that our factory is working at a very heavy loss and we are thinking of closing it down unless Government comes to our rescue and gives us proper protection for some time at least so that we can have the opportunity to put our factory on a sound footing. If a protective duty of 100 per cent. is put on the imported false pearls and beads we think we will be able to make both ends meet and make a small profit. If this is not done we will be forced to close our factory. We hope that you will consider this matter and recommend to Government to protect this industry by putting a heavy duty on imports.

Government of Punjab.

Letter No. 9346-E. & S., dated the 3rd December, 1931, to the Government of India, Finance Department (Central Revenues).

ORDER OF THE MINISTRY OF AGRICULTURE.

Subject:—TARIFF BOARD—PROTECTION—GLASS INDUSTRY—PUNJAB EXCISE BOTTLES.

With reference to Resolution No. 458-T. (2), dated the 20th October, 1931, I am directed by the Punjab Government (Ministry of Agriculture) to state that while the Punjab Government is not opposed to the protection of the Glass Industry in India with a view to its further development, it recommends that for the present exemption from any protective tariff should be granted to bottles of a certain class.

2. With effect from April 1st, 1931, this Government introduced into the Punjab a system by which all Indian made foreign spirit and country spirit distilled in the Punjab and sold for consumption in the province was to be bottled only in bottles bearing the words Punjab Excise, figures showing the contents of the bottle 26½ ounces in the case of quart bottles, 13½ ounces in the case of pin bottles and 6½ ounces in the case of half pint bottles, the name or mark of the manufacturer of the bottle, and a line on the neck up to which the bottle had to be filled in order to contain the proper quantity.

3. These regulations were introduced in order to ensure that, when spirit was sold to the consuming public in sealed bottles, the full quantity of spirit might be supplied to the consumer. It had previously been discovered that bottlers by giving short measure were defrauding the public and inducing them to accept less spirit than should have been sold to them at the fixed price to be charged for all such bottles of spirit. This practice reduced the quantity of spirit distilled in the Punjab distilleries by a considerable percentage, and this Government therefore lost large sums of still head duty.

4. These bottles are machine made in Europe, and, although the contents of each bottle cannot be guaranteed by the manufacturers to be absolutely accurate in each case, the process of manufacture is so efficient that on the average these bottles contain almost exactly the quantity of spirit which they purport to contain. The result of this innovation has been to make it easy to detect at a glance whether the licensed bottlers are filling their bottles with the full quantity of spirit or not.

5. This Government understands that in India there is no factory capable of producing bottles with sufficient accuracy to meet the requirements of the Punjab Excise Department, and I am, therefore, directed to request that such bottles may be exempted from any protective tariff, which may be imposed generally upon the glass industry, until such time as accurate standardised bottles manufactured in India are on the market.

6. Since the innovation was adopted from the practice in force in the United Provinces with the addition of the requirement that a line should be moulded on the neck of the bottle, this Government believes that the United Provinces Government will probably be prepared to support them in making this representation.

Government of Burma.

Letter No. 318-K. 31 (1024), dated the 4th December, 1931.

QUESTION OF EXTENDING PROTECTION TO THE GLASS INDUSTRY IN INDIA.

I am directed to invite a reference to the Government of India, Department of Commerce (Tariff), Resolution No. 458-T. (2), dated the 20th October,

1931, on the subject noted above and to say that in Burma there is no Glass Industry of any importance and that as far as one can see at present it is never likely to flourish in this province. There is no industry therefore to protect in Burma and a protective duty would merely have the effect of sending up prices for the consumer. His Excellency in Council accordingly depreciates the imposition of another duty upon consumers in Burma for the benefit of manufacturers elsewhere.

**Dr. H. D. H. Drane, Principal, the Harcourt Butler Technological
Institute, Cawnpore.**

(1) *Notes on questionnaire issued by the Tariff Board.*

7. The proper site for glassworks must be determined by consideration of the site of the raw materials and the markets which are served. In all cases soda is imported from one of the port towns by rail with the exception that it is now available from Dhrangadra (Kathiawar). Coal is mostly supplied from Bihar and Bengal; the deposits of sand are scattered; their location may be specified by reference to the separate note attached regarding glass sands in India. All things being considered, I would say that the most suitable site for a factory is at equal distance from the sources of supply of coal, sand and lime and the consuming centres. The question of the supply of labour does not seem to be one of importance in determining the location of the factory; this is illustrated by the extraordinary position in which factories at Bahjoi, Firozabad and Balawali have become successfully established. Considering all the points required in fixing the position of the glassworks it seems to me that Cawnpore is as good a location as any. Cawnpore is a rail centre for distribution and is nearer to its coal, sand and lime than Firozabad, Bahjoi and Balawali. Moreover there is an abundant supply of labour, some of which is of the skilled mechanic type. With these conditions Cawnpore seems a suitable centre for the establishment of a factory containing the more up to date automatic machinery. The more primitive methods of manufacture as *e.g.*, used at Firozabad would possibly obtain little advantage. Equally with Allahabad, Cawnpore is on direct line from any of the port towns for the import of soda.

There is a possibility that some glass manufacture might be developed in the Tarai region. There is an abundant supply of wood and in the upper region of the rivers there is expectation that suitable sand deposits might be obtained. Simultaneously lime stone may be got in River Valleys. The use of wood as a fuel offers the possibility of using the ash in the manufacture of Potash Glass. I propose myself to examine the availability of sands in this region.

8. Indian products are generally inferior to imported materials. I am unaware of the general tendency of price but if the Indian product is anywhere sold at a cheaper price than imported material, it is not because of most efficient methods of manufacture. In view of the heavy freight which any imported glasswork has to bear, it is obvious that its cost of production must be considerably below that in India. In general I would say that its lower cost of production is due to more efficient method in Continental countries.

9. The only technical feature involved in this is that rather more fuel is required in the wet season. I have questioned one glass manufacturer on this point and the increase appears to be about 5 per cent. on the normal consumption of coal.

18. The main imports are specially chemicals for use as colouring agents and soda. A small amount of Borax is imported overland but it is negligible.

19. I have not gone into this question closely but see no reason why with an adequate demand these materials could not be manufactured economically

in India. Soda which is the main import can be manufactured by what is known as the Ammonia Soda Process. This needs an abundant supply of salt and the manufacture must preferably be carried out near the coast. I am unaware whether this process is covered by Patents which would make its working difficult (soda is however manufactured by this process at Dhrangadra): but any manufacturer is immediately in competition with the resources of the large combines which control the manufacture and supply of soda. The natural course from which soda should be supplied to India is from Magadi, but I am not certain that this method is followed. I think a certain amount of soda consumed in India is actually brought out from England. It is likely that if a strict economic investigation were made, it would prove always possible to import soda from Kenya below the cost of production in India.

21. A separate note is given on sands. The sands generally are inferior to the best continental sands available for glass making, but not inferior in quality to the English sand which are used for bottle making.

I have not made any detailed examination of the Refractories which are produced in India. In view however of the successful operation of steel works in this country the availability of good qualities of fire clays is indicated. A good quality of silica brick is manufactured and I have seen these in use in various Glass Factories without complaint. The quality of clay available in India must be fairly good since a number of manufacturers are able to make their own pots in the case of the works at Bahjoi, special floating pieces for use on the molten glass are made permitting the continuous drawal of glass.

There are extensive deposits in India of Sillimanite. This is considered by many to be an ideal material for use as a Refractory in Glass furnaces and a certain amount of this material has I think been made artificially and is being used alone or mixed with clays in glass furnace in Europe and America. If it should prove possible to develop and exploit these deposits of Sillimanite for use as refractories in glass manufacture India would be in a position of unique advantage both as regards glass manufacture and the possibility of developing an export trade in high class refractories.

22. Most of the pots in India are made from Weathered Jubbulpore clay with the addition of Grog (usually pieces of old imported pots). The use of Sillimanite in pot making might be a source of advantage with some of the clays available. The method of building the pots is as usually done in other countries and a slow (2-3 months) process of drying is followed. I think the most usual source from which crucibles are imported is Japan. I do not think the transit has any effect on the pots unless they should be fractured enroute.

23. From casual inspection personally and by conversation with users of refractories for pot type furnaces it appears that available fire-bricks are not too satisfactory. The fire-bricks show more corrosion and softening than I would like to see in view of the low temperature at which the furnaces are worked, but I think that in many cases inferior fire-bricks are purchased when better are available. I am unaware what arrangements are made at Jubbulpore, etc., to control and maintain the qualities of clay used for bricks and their firing: I think that in some of the smaller Indian potteries supplying refractories the technical control must be inadequate, this however is mere conjecture since I have not visited any of these Potteries which are all out of the United Provinces. The non-uniformity of bricks however suggests this defect. Tank blocks for use in continuous gas fired furnaces are I think invariably imported, but development of the use of sillimanite should improve the position here.

24. Expert technical supervision is undoubtedly required in a glassworks if the process of manufacture is to be carried out efficiently. With regard to the provision of skilled labour imported from abroad I would say that once the processes are understood and known by the workers no necessity for continued supervision by imported skilled labour remains. The type of

labour specially required in a glass factory can be roughly classified as below:—

- (1) Furnace builders, (2) Furnace operators and (3) Glassworkers—(blowers, etc.).

Nos. (1) and (2) are required in much lesser number than No. (3). As the question is framed by the Board I take it mainly to refer to labour of the type under (3). The training of such labour in India is accomplished roughly by a system of apprenticeship, taking boys or young men into the factory as learners. The type of man who enters the industry in this manner is rarely sufficiently well educated to obtain a general picture of the operations required in the industry.

25. I know no imported labour at present in the United Provinces with the exception of one or two Japanese type furnace operators engaged at Bahjoi. Formerly some Belgian Tank operators were engaged, but I do not know if the conditions of employment in India for such workmen can be made sufficiently attractive to keep men here long enough for them to train the workers adequately.

27. Bottle making and similar blownware is the greatest field where machinery can replace hand labour. Bangle making is a process ideally suited to automatic working, but so far no attempt in this direction seems to have been made.

29. I have not made any observations of this matter. At the high temperature near a glass furnace it may really be more invigorating to work than at some little distance away from the furnace where the relative humidity is higher. I imagine that the most trying time for glassworkers is in the cold dry weather.

32. I only know of coal being used in works in India. The use of wood in the Tarai region would not be objectionable and would supply potash which could be used in the manufacture of a more resistant glass than at present manufactured.

33. Practically all the fuel is brought from the coalfields of Bihar and Bengal. See separate notes regarding Firozabad.

35. Any works requiring power probably generates its own steam. Depending where it is with respect to the local Electric Supply Company the factory would decide whether to generate its own power or not.

Except in sheet glasswork where electricity is used for driving motors and in bottle factories where it is required for running blowing machines very little power is used in a glassworks. The steam for the producers is required at a low pressure and temperature whereas steam for engines driving compressors or electrical generators required to be at high pressure. I myself have seen a direct waste of steam (exhaust steam from steam engine) which could be used for blowing producers.

36. (a) This is a large and complicated question and my notes on Firozabad may also be seen. A furnace may, according to its construction and operation, consume when running efficiently less than one ton of coal per ton of glass melted. As a lower limit about .5 tons of coal per ton of glass may be taken. In general an efficiency of one ton of coal per ton of glass cannot be reached except in gas fired furnaces with pre-heated air. Direct fired furnaces may consume anything up to 7 tons of coal per ton of glass melted. The efficiency of melting rises with increase of the size of the furnace, because of the relatively smaller area for radiation. Fuel economy is greater with glass which melts at a low temperature because of the diminished radiation from the furnace during melting.

(b) In the case of bangle working where the glass is worked after remelting the consumption of coal is not doubled. I cannot however give any exact estimate of the fuel used in remelting glass under the conditions existing in Firozabad—a good deal of wood is used as well as coal.

37. Even one furnace of a simple and inefficient design could function in India so that its proprietor could earn a livelihood. I have seen a works at

Hathras which is run by an ex-student of this institute which is running with a working capital of Rs. 20,000 and is going on successfully. The trouble in such a case is that lack of adequate capital hampers development. In a particular works which I have in mind two or three furnaces are erected on the Japanese type and several items of secondhand semi-automatic pressing machinery have been installed. It depends upon the stage of development of a works what capital is required to extend as *e.g.*, by installing another furnace. In the transit from direct fired furnaces to those using a chimney draught the cost of erecting a chimney is always a material item. Improvements are wanted particularly in furnace design.

41. The conditions of labour (cheapness, climate and refractories paucity) are different otherwise the processes involved in glass manufacture are the same as used elsewhere having been copied from Japan and Europe.

42. Apart from refractories and a few simple castings all constructional items required in a glassworks are imported. There is no reason why all items with the exception of automatic machinery should not be manufactured in India.

45 & 46. See separate note on Firozabad.

47. The East Coast of Africa offers a possible market for lamp chimneys and probably also bangles. Presuming development in the glass industry in the country, it is possible that an export trade in high class goods might be developed.

52. Advantages may be set out as below:—

Labour, materials (excepting soda).

Disadvantages—

Plant and machinery.

The three items climate, customs duties and freights operate in either sense according to the position of the factory. I do not think the question of long transport of manufactured glass goods is one of great importance generally. I may instance the case in England where glass bulbs intended for assembly into electric lamps are manufactured and transported from the Tyne to London and other centres for assembly and from there subsequently sent out as finished products.

53. I should not imagine that any underselling is practised. Such an arrangement almost pre-supposes a trust having a large selling interest. Except in the matter of bottles and sheet glass I do not think that there are any wide associations of this character in Europe or America.

60. I have already given the figures of Rs. 5,000 for installation of an additional ten pot furnace and Rs. 3,000 as working capital. I would be inclined to increase this figure at least to something between Rs. 10,000 and Rs. 12,500 per furnace installed, taking account of capital investment of building and accessory plant. Probably Rs. 10,000 per ten pot furnace represents a minimum effect on working capital.

67. (A) With the exception of soda which requires to be imported the industry does possess natural advantages in the matter of supply of raw materials. The question of provision of power, as electrical power, is not an important one to the glass manufacturing industry in general. There is an abundant supply of labour and undoubtedly a large home market.

(B) I do not think that protection alone will help the industry materially to develop unless simultaneously technical help and guidance is given to the industry generally. With present financial circumstances it seems improbable that funds would be available for fostering development upon proper lines without obtaining the necessary revenue by protection. As a related subject, the question of development within India of soda manufacturing business which is intimately connected with the Glass Industry might be considered. The immediate imposition, for example, of a tariff upon soda would obviously embarrass the glass manufacturers. There is no possible source of soda in India except that which may be manufactured. The

possibility of using the reh deposits which exist in the United Provinces and other districts has been examined but abandoned as uneconomical. Even supposing that a tariff was imposed upon soda I am doubtful whether it can be manufactured in India at a cost below that at which it could be economically imported from Magadi. In the event of the imposition of any additional tariff upon imported glassware I do not think that any advantage would be got by framing such a tariff to include glass containers which are imported into the country for foodstuffs, etc., and it would seem proper to exclude these. Likewise the continued import of the finer qualities of glassware would not require a tariff being imposed. In general with regard to protecting the glass industry I am not favourable to a tariff excepting so far that its revenue might, at least in part, be applied to technical development of the industry. Without this the imposition of a tariff would simply justify the continuance of the present inefficient methods of manufacture.

(C) With the natural advantages of raw materials and the possibility of the development of alkali manufacture, I see no reason whatever why the industry should not ultimately compete in the world's market or satisfactorily fulfil its own market in the face of outside competition.

(2) *Notes on the Glass Industry at Firozabad in particular.*

The industry at Firozabad has developed mainly within the last 25 years. It is said to have been originated by an ex-employee from a glass factory in the neighbourhood of Dehra Dun. It is also said that there are about 15,000 people employed in connection with the glass trade at Firozabad but I am inclined to think that this, certainly at present, is an over-estimate. The figure most probably includes whole families where possibly only one or two members are fully engaged in such work as bangle joining and decoration.

2. The main development of the industry appears to have been during the war period owing to the difficulty of obtaining imported glassware particularly bangles. The possibility for progress of the industry during the war years is shown by considering the figures of imports of bangles in the year 1913-14, 1916-17 and 1917-18. Respectively the values of bangles imported were Rs. 80,00,000, Rs. 43,00,000 and Rs. 35,00,000. During the war period according to the statements in the Indian Industrial Commission Report (1916-18) Firozabad was producing glass at the rate of about 15 tons per day. The present production cannot be more than 12 tons per day. During the war the total output of glass from factories in India was also estimated by the Indian Industrial Commission as being worth about Rs. 20,00,000 per year. I think that the present production of the various factories in India which are working is not less than this. The total values of imports of glass into India have, since 1913-14 when they stood at a total of Rs. 1,90,00,000, now risen in the year 1929-30 to Rs. 2,50,00,000. About 10 per cent. of this import is from Great Britain and the remainder almost equally divided between Japan, Czechoslovakia and Germany.

3. Since the war the industry at Firozabad seems to have declined in its prosperity because of competitive imports. At present there are about 12 firms engaged in the industry at Firozabad possessing between them eight factories of moderate size. About 21 direct or Japanese type furnaces are in existence and one gas fired furnace. Only four of the direct furnaces were working at the beginning of this year and five of the Japanese type.

4. The type of direct fired furnace, used at Firozabad, seems to have been copied from a German or Austrian pattern. Possibly this dates from the introduction at Firozabad of the gas fired furnace mentioned in the Indian Industrial Commission Report.

5. In addition to the glass melting furnaces already referred to there are some 40 or 50 re-working furnaces in which the glass, after its original melting, is softened and drawn into rods of suitable diameter from which

bangles are subsequently made. The smaller furnaces are, essentially, simply wood fires over which the glass is reheated.

6. In addition to this method of working to produce bangles, remelting the glass into a pasty condition and manipulating it from a disc shape into a ring is also practised. This type of manipulation is for coarser and heavier bangles, the remelting being done in a small direct fired furnace containing 10 or 12 small pots. I have not myself seen this class of work in execution but understand that it is most objectionable from the health standpoint because of the primitive types of furnaces used. To return to the original melting of the glass the processes involved may be put up as below:—

- (a) Mixing,
- (b) Melting, and
- (c) Casting.

The main ingredients required and used at Firozabad are: coal, limestone, soda and sand. In addition to this various colouring agents are used most of which are imported. I deal later with the sources of supply of coal, soda and sand. The main cost for these materials entailed is in the coal, soda and sand. About 5 per cent. of the total cost of the finished glass being represented by the cost of covering agents. I was informed of the composition of the mixture put into the furnaces for melting at Firozabad by one company. This was, two maunds of sand, one maund of soda ash and 10 seers of lime which might be partly substituted by Barium. In addition to these main ingredients one seer of nite, $\frac{1}{2}$ seer of arsenic oxide, 3 chhataks of manganese dioxide and $\frac{1}{2}$ seer of borax were said to be added to produce glass of an amber colour. The composition of this glass roughly corresponds to 71 per cent. Silica, 20.6 per cent. Na₂O and 8.6 per cent. CaO. An excessive amount of soda seems to be used in this glass. In this particular factory using one of the direct furnaces 100 maunds of glass can be produced in 24 hours in 8 or 10 pots. The pots were not completely filled, about 13 to 15 maunds capacity being provided in each pot. From the pots after melting the glass is withdrawn by iron spoons about 8 to 10 inches in diameter and approximately hemispherical in shape. The glass is then poured over metal plates. Upon cooling it is broken into pieces about 4" x 4" x 1" thick which constitutes the finished product of this glass melting works.

7. The re-working of these pieces of glass after re-melting and gathering as already indicated in paragraph 6 is done over a wood fire. From the softened piece of glass held over the wood fire a rod of glass is withdrawn and then wound upon a cylinder while still soft giving a continuous spiral. In one works I understand glass is withdrawn directly from a pot and wound up in the form of a spiral but I have not myself seen this. In some of the works the process of glass melting and spiral production are both carried on side by side.

8. After the spiral has been produced it is cut along a line parallel to the axis of the cylinder upon which it is wound so that a series of almost circular pieces of glass are obtained. To produce a bangle from these they must first be heated so that the rod of glass forming a bangle lies in one plain and the free ends joined. The joining is done by heating the free ends in a kerosene oil flame directed on to the bangle by a jet of air. When soft the ends of the bangles are pushed together and the joint made. To flatten the bangle into a plane before joining it may be heated on a metal plate so that it falls to the required shape otherwise the bangle may be heated at the point opposite to the intended joint immediately before softening the ends for joining in kerosene flame.

9. Briefly this gives an account of the processes involved at Firozabad. I will deal now with the raw materials with the exception of lime. Particulars are given on the attached sheet of the freights charged on various raw materials imported into Firozabad and the freights charged for the

transit of various classes of manufactured goods within the United Provinces. In addition are also given the figures showing the annual figures of coal, sand and soda imported into Firozabad during the last five years. These figures have been obtained by deputing to Firozabad at the commencement of this year one of my assistants who examined the records available in the railway station at Firozabad. They were not otherwise available. I note a discrepancy in the figures given for purchase of raw materials with the figures given to me by one of the manufacturers when I was at Firozabad. He instanced the particular case of imports of soda from Dhrangadra to Firozabad. Soda is now manufactured at Dhrangadra of satisfactory quality. I was informed that the freight by the Bombay, Baroda and Central India Railway from Dhrangadra to Firozabad was As. 12-6 per maund, whereas the freights from Bombay Great Indian Peninsula Railway and from Howrah were As. 10-7 and As. 9-3 per maund respectively. This was given by the particular manufacturer concerned as an example where freight might advantageously be reduced. Apparently since that time freights on soda have been slightly reduced but the balance is still in favour of imports from port towns.

10. The most interesting conclusions regarding the state of the industry at Firozabad are to be obtained from the figures which I give of coal imports to Firozabad and the ratio of coal, sand and soda. Presuming that the glass manufactured at Firozabad contains 75 per cent. of silica, which is a justifiable supposition, the ratio of the coal import to the glass production in the years 1927 to 1931 are 4.4, 4.3, 4.22 and 3.3 giving an average of 4 tons of coal per ton of glass produced. This would seem to indicate some gradual improvements in the efficiency of working possibly brought about by the necessity of circumstance rather than design. Because of an inadequate knowledge of the stocks of these various materials kept in hand the figures in any one year cannot be relied upon too closely. There is a further point of interest. Studying the ratio of the soda imports to the sand imports which give a key to the composition of the glass manufactured the ratio of sand to sodium oxide in the four years considered increases from 2.5 in 1927 to 4.35 in 1930 to 1931. The figures are 2.5, 3.25, 4.00, 4.35 showing a continuous increase. The average for the whole of the four years is 3.45. Here again the exact values cannot be completely relied upon but it is of interest to note that the ratio of sand to soda rarely falls below 4.15 for the most usual types of soda lime glasses which are manufactured elsewhere. It is a matter of comment that the glass produced at Firozabad has a very high content of soda. The cost of production could be materially reduced with improved methods. The sources of materials used at Firozabad are shown separately in graph form. On this graph are shown the actual distribution of imports from different sources, and the freights charged in each case. Most of the sand used for glass manufacture at Firozabad is taken, it will be seen, from Savai Madhavpur and lesser quantities from the deposits at Allahabad.

(3) *Notes on the lines of development of Glass Industry at Firozabad and generally in India.*

With abundant supplies of coal, lime and sand of suitable quality and the probability of good firebricks being available the glass industry in India should be capable of much improvement. The main possible lines of development are:—

- (a) Improvement of furnaces.
- (b) Improvement of glass mixtures used.
- (c) Development of refractories.
- (d) Introduction of automatic working, and
- (e) Study of the possibility of improvement in the colouring of glasses.

2. The whole of the work done at Firozabad at present could with centralization be done in one or two decent sized factories. The furnaces require

redesigning in order that they may be more efficient. The present over all consumption of coal per ton of glass imported at Firozabad is about four tons approximately. This should be reduced to below one ton of coal per ton of glass in an efficient furnace. My opinion is that the best line of development is to introduce furnaces using recuperators rather than regenerators. These work continuously without any reversal of gas and air supplies but suffer from certain technical difficulties which demand the supply of very good glass quality refractories and pots. No such furnaces are yet installed in India to my knowledge. With the improvements of furnace design it will become possible to work at a higher temperature which would permit the use of less soda in the glass and give more economic production, apart from the question of diminished fuel consumption.

3. Improved methods of working finished bangles are required and with the availability of furnaces which are fired by producer gas some of the gas could be diverted for use in the bangle joining work. This would necessitate a centralization of the bangle joining adjacent to the factory and improved labour conditions would result. Furthermore, the method of generating the spiral direct from the furnace merits development. Indeed from an inspection of the type of operations which are entailed at Firozabad it appears possible that the whole series of operations might be made completely automatic. The operations are relatively simple and less involved than in bottle making or an electric lamp assembling.

4. Nobody in India appears to have considered the possibility of developing an optical glass industry. There must be a demand, if only, for spectacle lenses and such optical apparatus as are at present imported, e.g., binoculars, etc. The development of such an industry seems to have favoured craftsmanship which is available throughout India and which could easily be diverted to such matters as the grinding and figuring of lenses, etc. It is doubtful however with the present conditions whether such an industry would permit of an export trade.

5. In considering lines of development of the industry one of the most important points is to consider the possibilities of amalgamation of association amongst manufacturers, etc. Such association must be not only from the purely commercial standpoint but must also involve technical and financial consideration. I understand that several local associations exist at Firozabad and that an all India Glass Makers' Association exists, but I am not aware of their exact functions. I consider that some of the most important features which such associations should consider are:—

- (1) Standardization of products and processes.
- (2) Arrangement for research and development.
- (3) Arrangements for purchase and sale.
- (4) Allotment of work.
- (5) Finance, and
- (6) Labour policy.

Such organization might be provincial as well as throughout India. Although these associations exist at Firozabad I have found the conduct of manufacturing work there to be somewhat difficult to understand. Some manufacturers are themselves agents for the import of materials used in glass manufacture and indeed for the import of bangles which are also distributed in competition with their own. The confusion of efforts with so many activities vested in a manufacturer seems to me very undesirable. Possibly some steps might be taken to improve these by working such trade organization. I have given in a separate note an indication of the type of investigations aiming at developing the industries which have been undertaken at the Harcourt Butler Technological Institute.

I have not commented in this note regarding development of refractories. The possibility of using sillimanite in the glass industry requires examination—a systematic study of Indian refractories is also required.

(4) Glass Factories.

	Equipment.	Output.	Remarks.																					
<i>United Provinces.</i>																								
1. The United Provinces Glass Works, Bahjoi, Moradabad, United Provinces.	One tank, furnace, capacity 7,000 maund glass, 6 Japanese type furnaces.	Manufacturers, sheetglass, chimneys, tumblers, electric shades, etc., tank block imported.																					
2. The Ganga Glass Works, Balwali, United Provinces.	Direct coal fired covered pot furnace, capacity 2.5 tons daily.	<table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Tons.</th> <th>Value.</th> </tr> <tr> <th></th> <th></th> <th>Ra.</th> </tr> </thead> <tbody> <tr> <td>1926</td> <td>.</td> <td>..</td> </tr> <tr> <td>1927</td> <td>.</td> <td>800</td> </tr> <tr> <td>1928</td> <td>.</td> <td>900</td> </tr> <tr> <td>1929</td> <td>.</td> <td>1,100</td> </tr> <tr> <td>1930</td> <td>.</td> <td>1,200</td> </tr> </tbody> </table>		Tons.	Value.			Ra.	1926	.	..	1927	.	800	1928	.	900	1929	.	1,100	1930	.	1,200	Soft soda glass, usually white of Japanese make out of Jubbulpore clay.
	Tons.	Value.																						
		Ra.																						
1926	.	..																						
1927	.	800																						
1928	.	900																						
1929	.	1,100																						
1930	.	1,200																						
3. The Krishna Glass Work, Hathras Junction, East Indian Railway.	Two pot furnaces, Japanese type, one with 6 pots and one with 9.	350 dozen lamp globes per day (about actual).	They can make their own crucibles (Jubbulpore clay).																					
4. The Allahabad Glass Works, Naini, East Indian Railway.	One tank furnace, capacity 1,300—1,400 maunds of glass. 3 automatic blowing machines for bottles. 2 pot furnaces.	8,000 soda water bottles per day (possible).	Specialise in soda-water bottles and phials of various description.																					
5. Firozabad Glass Factories	7 direct fired furnaces of which 4 are working, 14 Japanese type furnaces, 5 are in operation. The gas fired furnace is not working.	Considerable reduction in the output of Bangle making glass in recent years.	Some pots made locally, reduced purchasing, of the public, competition of imported bangles, competition between the manufacturers.																					

OTHER PROVINCES.					
GLASS	<i>Bombay.</i>				
	1. The National Glass Works, Mazgaon, Bombay.	....	Output worth Rs. 600,000 in 5 years.	
	2. The Paisa Fund Glass Works, Talegaon, Poona.	Direct fired furnace	Annual output worth Rs. 100,000.		
	3. The Ogle Glass Work, Oglewadi, Satara.	Japanese type direct fired furnace ; continuous for annealing glass.	Annual output worth Rs. 125,000.		
	4. The Central Bottle Works, New Agra Road, Kurla.	....	....
	5. The Bombay Glass Bevelling Co., Tardeo, Bombay.		....	
	<i>Punjab (only one factory).</i>				
	1. The Upper India Glass Works, Ambala.	One furnace with Japanese crucibles (10 in a furnace).	Annual output :—		
				Rs.	
			1927	80,000	
		1928	80,000		
		1929	1,25,000		
		1930	1,50,000		
2	<i>Central Provinces.</i>				
	1. The Nagpur Glass Works, Nagpur.	Japanese type direct fired furnace	Annual output :—		
				Rs.	
			1927-28	25,000	Lamp chimneys, etc.
			1928-29	40,000	
		1929-30	60,000		

	Equipment.	Output.	Remarks.																		
<i>Central Provinces—contd.</i>																					
2. Shree Onama Glass Works, Gondia.	Direct fired Japanese type furnace with covered crucibles.	Annual output :— <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: center;">Weight in mds.</th> <th style="text-align: center;">Value Rs.</th> </tr> </thead> <tbody> <tr> <td>1925-26 .</td> <td style="text-align: center;">3,423</td> <td style="text-align: center;">68,453</td> </tr> <tr> <td>1926-27 .</td> <td style="text-align: center;">3,580</td> <td style="text-align: center;">53,774</td> </tr> <tr> <td>1927-28 .</td> <td style="text-align: center;">3,754</td> <td style="text-align: center;">58,831</td> </tr> <tr> <td>1928-29 .</td> <td style="text-align: center;">3,869</td> <td style="text-align: center;">46,532</td> </tr> <tr> <td>1929-30 .</td> <td style="text-align: center;">4,086</td> <td style="text-align: center;">43,753</td> </tr> </tbody> </table>		Weight in mds.	Value Rs.	1925-26 .	3,423	68,453	1926-27 .	3,580	53,774	1927-28 .	3,754	58,831	1928-29 .	3,869	46,532	1929-30 .	4,086	43,753	Chimneys, globes, cake holders, jars, tumblers, finger-bowls, paper weights, glass vases, etc.
	Weight in mds.	Value Rs.																			
1925-26 .	3,423	68,453																			
1926-27 .	3,580	53,774																			
1927-28 .	3,754	58,831																			
1928-29 .	3,869	46,532																			
1929-30 .	4,086	43,753																			
<i>Bengal.</i>																					
1. The Bengal Glass Works, Dum-dum, Calcutta.	} Employ pot furnaces.																				
2. The Para Glass Works, Ramraj-tala, Bengal-Nagpur Railway.																					
3. The Calcutta Glass and Silica Works, Belgachia, Calcutta.	} Employ tank furnaces.																				
4. The Beliaghata Glass Works, Beliaghata, Calcutta.																					
<i>Mysore—None.</i>																					
<i>Behar—None.</i>																					

(5) Freight charged on raw materials.

COAL.			SAND.			SODA.			
From	To	Freight per ton.	From	To	Freight per Md.	From	To	Freight per Md.	
Asansol . . .	Firozabad . .	Rs. A. P. 8 8 0	Lohagra . . .	Firozabad . .	Rs. A. P. 0 2 9	Cossipore . .	Firozabad . .	Rs. A. P. 0 9 9	
Ranigunj . . .	Do. . .	8 8 0	Bargarh . . .	Do. . .	to 0 3 3	Sahib Bazar . .	Do. . .	0 11 0	
Ondal	Do.	8 10 0	Sawai Madhopore.	Do.	0 3 3	to 0 12 0	K. P. Dock . .	Do.	0 9 6
Jharia	Do.	7 10 0				Dhrangadra . .	Do.	0 10 9	
Pathardihi . . .	Do.	7 10 0				Jetty	Do.	0 9 6	
Sitarampore . .	Do.	8 10 0				Howrah	Do.	0 10 6	
Katrasgarh . . .	Do.	7 12 0							
Kusunda	Do.	7 10 0							

Freight charged on manufactured goods.

BANGLES.			LAMP CHIMNEYS.			PLATE OR SHEET GLASS.		
From	To	Freight per Md.	From	To	Freight per Md.	From	To	Freight per Md.
Firozabad . . .	Cawnpore . . .	Rs. A. P. 0 5 2	Firozabad . . .	Cawnpore . . .	Rs. A. P. 0 7 5	Bahjoi	Cawnpore . . .	Rs. A. P. 1 5 7

22
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(6) Monthly average rail imports to Firozabad.

	1926-27.		1927-28.		1928-29.		1929-30.		1930-31.		1931-32.					
	Total in tons.	Per cent.	Total in tons.	Per cent.	Total in tons.	Per cent.	Total in tons.	Per cent.	Total in tons.	Per cent.	Total in tons.	Per cent.				
Coal	1,445	..	1,584	77.8	1,416	78.8	1,722	79.4	1,452	76	..	..		
Sand . . . . .	..	..	270	13.23	249	13.6	317	14.2	330	16.9	..	..		
Soda . . . . .	..	..	184	9.05	131	7.2	136	6.4	129	6.75	..	..		
TOTAL	1,445	..	2,038	100	1,796	100	2,175	100	1,911	100	..	..		
Coal: Sand: Soda	15.84	2.7	1.84	14.16	2.49	1.31	17.22	3.17	1.36	14.52	3.30	1.29
	100	17	11.6	100	17.5	9.2	100	17.8	7.9	100	22.7	8.9

(7) *Memorandum regarding possibilities of establishment of a department of the Glass Technology at the Technical Institute, Cawnpore.*

The proposal to open up a department of Glass Technology immediately brings in the question of what is meant or understood by the term Glass Technology. At the outset I would make it clear that it is not a practical proposition to erect at the Institute a complete plant for the melting and working of glass on a small scale, in which intending entrants to the industry might be trained. The object of any training which might be given would be to give an adequate scientific basis to a man who might later enter into the industry and usefully apply his knowledge. This type of training is distinct from training a man in furnace operation or in the subsequent manipulation of glass. The training which a man requires to possess to enter the glass industry must include the subject of Physics, Chemistry and Engineering, and the type of chemistry which he is required to know is particularly physical chemistry. The best method by which a man can be trained for entry in the glass industry is by his carrying out experimental work under suitable direction which involves the use by him of the materials which are used in the glass industry and apparatus which brings him familiarity in dealing with materials which require to be handled at high temperature. If during his work in the Laboratory dealing with such matters he has to come into contact with glass works by visiting them to take samples or to make some measurements he gradually becomes familiar with the processes involved, when his special knowledge of the materials becomes invaluable.

I would not therefore be favourable to the establishment of a special teaching department in the Institute devoting itself to training students in Glass Technology. In the first place the number of factories in India in which such men could help to find employment does not exceed 20. Secondly as I have already instanced above the training is best likely to be accomplished by working in laboratories concerned with the materials used in the industry and its methods.

With present arrangements at the Technological Institute it would not be possible for me to undertake any special training of students in the Institute in any instructional course of Glass Technology which might be described as adequate. I would prefer to commence any development in the training of Glass Technology or in offering assistance to the Glass Industry generally by development of the system, which is at present in force at the Institute. I have succeeded in interesting one of the senior members of my staff in the problem of the Glass Industry and I should like to supplement his work by arranging that he should spend his full time upon problems connected with glass and that he should have in addition a staff of three junior research workers who would be paid about Rs. 150 per month. The qualifications required by the men to be recruited for this type of work would be an honours degree in Physical Chemistry, or Mining and Metallurgy, or preferably such graduates who had had an year or two's experience in Steel Works or Glass Works, if they would be available. In addition I would recommend the recruitment of one young engineer who would carry out experiments at Cawnpore upon furnaces and producers and also one draftsman. The workers so engaged would be set to work upon problems connected with—

- (a) With the refractories and glass available in India,
- (b) The improvements of the glass mixtures used in the various factories,
- (c) With improvements in the furnaces.

An adequate provision of this staff in the matter of travelling allowance would be necessary so that they might visit factories as required. With a staff of this character comprised of well educated and enthusiastic young men there would be every prospect of them supplying information which would lead to a rapid improvement in the Glass Industry in India. Working in the laboratories of the Institute for their full time, upon the materials

used in the industry, and becoming familiar by their visits to various glass factories with the details concerning the working of glass furnaces, such men would be in a very enviable position to command employment in one of the various glass factories. After an year or two, such of them as might show the particular ability and keenness might be accepted on to the staff of the Institute as permanent research workers upon the subject. I prefer the method which I have detailed above to the immediate appointment of any worker in the Category of Officer firstly since I consider it the most efficient method and secondly because I do not think that any suitable officer could be recruited in India. In setting up such an establishment to carry out research into the Glass Industry I would not recommend the immediate provision of a large amount of equipment. This is not necessary. I would however suggest that a provision over a period of four or five years of Rs. 60,000 to cover the cost of special apparatus and equipment should be made; say annually a provision of Rs. 12,500. The cost entailed by appointing three research workers at Rs. 150 per month would be Rs. 5,400 annually. In addition I would suggest a special provision of Rs. 1,000 to cover travelling expenses making a total of say Rs. 19,000 for an year's working, with some additional office staff for record work, etc., say Rs. 20,000 per year. This does not include the cost of the full time of an officer of the Institute who would necessarily be devoted to the immediate direction of the work. I have not before me at the moment exact figures of the values of the glass imports of India, but I think they are in the neighbourhood of about two lakhs of rupees. The introducing of 0.25 per cent. import duty would produce a revenue of Rs. 50,000 annually which would be adequate to cover the cost of the staff and material which have been proposed and to reimburse the United Provinces Government for the making available of a building in which the experimental work might be carried out, and the time of such officers as might be devoted to the work upon a full time basis. This method (a tax for imports) of providing money for the execution of the research may possibly be objectionable upon major economic grounds, but it appears as an immediate possible source from which provision might be made. It may be of interest to compare the figures of cost which have been entailed in England in setting up a department of Glass Technology at Sheffield. But conditions here are different since there are at Sheffield facilities for giving men adequate training in other ancillary subjects and there is a large possible field of employment for trainees. The department of Glass Technology at Sheffield was established in 1916, but I have no figures of the cost during the first few years. In 1920, however, the department had an income of about £3,500 annually, made up approximately as below:—

	£
Government grants	1,250
Glass Makers' Association	1,250
University	500
Fees received	500

In 1930 this income had risen approximately to £7,000, Government supplying £2,000, manufacture £3,500 and the University contribution and the amount of fees for testing received amounting to £600 each. The distribution of cost in 1930 roughly as below:—

	£
Teaching and research staff	3,000
Additional research workers	800
Wages	700
Laboratory expenses	1,000
Travelling	200
Office building, etc.	1,300
	7,000

Roughly the expenditure per year at Sheffield corresponds to Rs. 90,000 and during the period since its establishment the department has done much good work. It is of interest to note that the Sheffield work was originally acclaimed as offering a training to men to enter the industry by following a definite course of instruction, but the most successful passages into the industry have been made not by the students simply trained in the department but by those who have been trained and have subsequently joined the department as research workers of three or four years. In India the preliminary training is best given in one of the Universities having a technical bias. As a further point of interest the work at Sheffield which has received universal acclamation has been throughout directed to ascertain the fundamental properties of the materials used in the industry and energies have not been frittered away and on specific problems concerning individual manufacturers. It would be upon such a line that I would insist in the case of development of a Research Section dealing with the Glass Industry at Cawnpore. To sum up the main points in—(1) There is not a large demand to train men for entry into the Glass Industry. (2) Assistance can be best given by establishing a research centre in close contact with the industry. (3) The personnel of technical men required by the industry would best be supplied by absorption from such a research department of men who have made contact with industry. (4) No special establishment at Cawnpore is recommended for training in Glass Technology, but the recruitment of any three research men and the cost of materials required, should be provided for at an estimated cost of Rs. 20,000 annually for 5 years. (5) Cost to the United Provinces Government of such an establishment and the provision of buildings, with the time of officers entailed could be met by levying an extra 0.25 per cent. import duty. (6) The research to be carried out should have a wide scope relating to Indian raw material and methods of working.

(8) *Notes on work already done at the Technological Institute in connection with Glass.*

Attention was first given to experiments in connection with glass about three years ago and some preliminary experiments were tried to improve the methods used for colouring glass red and yellow, as done at Firozabad. The results of these preliminary experiments were not very conclusive, but some useful experience was acquired in the melting up of small batches of glass and their manipulation. The attention of the Institute was first given serious to the Glass Industry in December, 1930, and the first step taken was to circularise Directors of Industries and known glass manufacturers throughout India for information regarding the extent of their production and the submission of samples of sand available. The response to this enquiry was not very adequate, but such information as was made available regarding glass works, production, etc., is included in the tabulated statement which forms an appendix to the note on the Glass Industry at Firozabad. A separate note on Indian glass making sands is attached which covers the results of examination of all the specimens which were received. In February or March, 1931, I myself visited Firozabad and the Institute has since kept in close touch with manufacturers there. The matter of giving special technical assistance to the Glass Industry at Firozabad was considered by the Research Committee of the Institute in May, and work is proceeding roughly on the lines of the note on this subject then submitted to this Research Committee and attached for information. Experiments have been made, without success to develop a suitable kerosene burner for bangle joining. The assistance of the larger mineral oil companies was invoked in this direction but the design of a burner for this purpose was considered by them to be outside their province. Attention has therefore been directed to the erection of a small producer using charcoal so that gas may be available for this purpose of joining bangles, to date the producer has not been got into operation and no tests on the

use of the producer gas for joining bangles has been possible. Consideration has been given to the design of a suitable producer gas fired furnace using pots. Contact has been made with the manufacturers of refractory materials and some special items required for assembly in recuperator chambers have been made at the request of the Institute. So far these refractory tiles have not been tested, nor is the design of a furnace yet complete. Some work has been done on examining the thermal expansion characteristics of the glasses which are used for bangle making and also of the annealing temperature required for this type of glass. The extension of this work is likely to give useful information regarding the type of glass used. No special funds are earmarked in the Institute for work in connection with glass. Money is not immediately required to continue the present slow rate of progress of the investigations but as indicated in a separate note, it will be desirable to have at the Institute two or three whole time workers engaged at the problem entailed in the industry.

NOTE.—An additional investigation was made in July of this year concerning the nature and extent of imports of certain raw materials into Firozabad during the last five years. The figures obtained are commented upon elsewhere.

Enclosure 1.

—————

Notes for Members of the Research Committee (May, 1931).

The glass industries at Firozabad and Shikohabad offer a field for investigation upon which a part of the research activities of the Institute can usefully be concentrated. Three main groups of problems affront this industry. (a) Furnaces (b) Manipulation—Particularly lamp working of glass, (c) Colouring agents. I would suggest that the existing problems be tackled in the order (b), (a), (c). The industry at Firozabad is already divided largely between (i) glass melting, (ii) spiral production, and (iii) joining and decoration of bangles. It is logical to retain the partition of item (iii) but items (i) and (ii) can and should be amalgamated. An immediate start can be made by (1) developing an improved kerosene burner or a blow pipe using producer gas, (2) introducing producers instead of direct firing for the furnaces. If a start can be made with an improved kerosene burner or as I think it possible with small producers to give gas for blow pipe working there will be no difficulty in persuading some of the larger glass melting firms there to take to gas fired furnaces. This will indeed be a matter of necessity since improved methods of manipulation will lead to an increased demand for glass. With development on these lines the manufacture of glass may ultimately be centralised in one or a few large and efficient glass works. The production of the spiral ribbon for bangle making could then probably be made completely automatic with glass direct from the molten state, and many of the subsequent operations in connection with joining also could similarly be mechanised. When I was in Firozabad in March, I discussed various points with the President of the Glass Manufacturers Association, he was very anxious to receive assistance from the Board of Industries either by way of a grant to import foreign workers and engage them in their establishments or to place funds at the disposal of the Institute so that research work on glass might be carried out there on their behalf. He was particularly concerned with colouring agents, but I think at the moment work can most usefully be done on the lines noted above in the Institute. If a satisfactory blow pipe is developed I propose in the first place to import a bangle worker here and to observe his performance before suggesting to instal any special plant at Firozabad. In connection with furnaces I think some preliminary designs may be got out in the Institute. The proprietor of the Coronation Glass Works who consulted me in this connection is anxious to proceed with development of a gas fired furnace, and this installation might be in part subsidised by the funds at the disposal of the Board of Industries.

Enclosure 2.

Indian Glass Making Sand.

There is no collected or authenticated record of the composition, size and other properties of the sands which are generally used in the manufacture of glass in India. In the general interest of glass manufacture in India and with a view to have an accurate record of the properties of the various glass sands used the following investigation was undertaken.

Ten samples of glass sands as below were collected through the kindness of various provincial directors of industries and glass factories:—

Place of origin—

1. Panhai (Manikpur), District Banda, United Provinces.
2. Jaijon, Punjab, near Jullunder.
3. Jaijon, Punjab, near Jullunder.
4. Jaijon, Punjab, near Jullunder.
5. Barhgar, United Provinces, near Manikpur, District Banda.
6. Delhi.
7. Sewai Madhopur, Rajputana.
8. Jullulpore, Central Provinces.
9. Ennore, Madras.
10. Ennanoor, Madras.

These apparently represent the whole of the available glass making sands in India. No complete information is available at the moment showing the extent of the deposits, cost at site, possibility of washing and grading at site, etc., which are desirable particulars in considering each deposit as a source of material for glass making. It is hoped however to obtain this information and have it available for manufacturers at an early date.

Analysis.—All the samples were analysed complete, silica was estimated by the hydrofluoric acid method and the rest as usual after fusion with fusion mixture ($K_2CO_3Na_2CO_3$). The results are given below:—

	SiO ₂	TiO ₂	Fe ₂ O ₃	Al ₂ O ₃	CaO	MgO	Loss on ignition.	Total.
1. Ranhai sand . .	97.54	0.08	0.11	1.05	0.05	0.05	0.20	99.08
2. Jaijon No. 1 . .	99.00	0.14	0.10	0.85	0.05	0.11	0.15	99.90
3. Jaijon No. 2 . .	98.80	0.07	0.25	0.82	0.06	0.17	0.14	99.81
4. Jaijon No. 3 . .	96.54	0.26	0.34	1.60	0.11	0.54	0.40	99.79
5. Barhgar Sand . .	97.58	..	0.16	1.52	trace	0.18	0.68	100.46
6. Delhi Sand . .	97.22	1.40	0.21	0.36	0.15	trace	0.41	99.25
7. Sewai Madhopur . .	98.44	..	0.33	1.17	0.09	trace	0.43	100.46
8. Jubbulpur sand . .	98.04	0.63	0.14	0.91	trace	0.09	..	99.81
9. Ennore ,, . .	97.12	0.22	0.14	0.98	0.10	nil	0.11	98.87
10. Ennanoor ,, . .	97.42	0.12	0.24	0.11	0.10	trace	0.24	99.23

Considering all the figures sample No. 2 (Jaijon sand No. 1) appears to be the purest sample of sand. Nos. 1, 5, 6, 7 and 8 seem to be of the same order except that No. 6 contains an appreciable quantity of TiO₂ and No. 7 an excess of Fe₂O₃. 5, 6 and 7 are the sands usually used for glass making in the United Provinces.

Grading.—The samples of sand were all successively sieved through the following I. M. M. sieves of 30, 60, 80, 90 and 100 meshes per inch. One hundred grams of sand were successively sieved and the quantity retained on each sieve was weighed.

Percentage of sand retained successively—

Sample No.	30	60	80	90	100 meshes.	Per cent. passing through 100 meshes.
1	66.3	30.6	1.4	0.4	0.1	1.2
2	0.1	41.5	24.2	3.5	0.6	30.1
3	23.0	43.8	10.4	2.0	0.6	15.2
4	0.2	5.3	10.8	5.5	2.4	75.8
5	11.3	48.5	18.8	2.2	1.2	18.0
6	34.5	46.3	8.3	1.2	0.2	9.5
7	14.4	54.5	8.9	2.5	0.6	19.1
8	18.8	66.2	8.8	1.4	0.4	4.4
9	79.7	18.8	0.9	0.1	0.1	0.4
10	83.7	15.8	0.2	0.1	0.1	0.1

These figures of grading have been expressed in a graphic form in figures I and II. The actual grain size may be seen from the photographs attached and described below.

In order to record the size and outline of the particles of sand, the samples were each photographed, as shown in figures 1-10. The size of the particles can be directly judged from the photograph of a scale taken exactly under similar conditions. In the actual prints accompanying this note the magnification is about 37.

Samples Nos. 5, 6 and 7 contain an appreciable quantity of fine particles, Nos. 1 and 3 containing a smaller quantity. No. 4 is dusty while Nos. 2, 8, 9 and 10 are practically free from dust. Sample No. 2 appears quite clean and is of uniform size; it is undoubtedly the best glass making sand, amongst those examined. No. 2 approaches the type of Fontainebleau sand and Nos. 6, 8, 9 and 10 are approximately of the same type as the Thenish deposits of sand used for glass making in Belgium and Germany though all show a high iron and alumina contents.

The various specimens were examined also to determine the quantity of electrolytes present in the sand by the method noted below. The results are recorded, but are not of major importance in judging the sands for glass making purposes.

Fifteen grams of sand were shaken up with 30 c.cs. of water and the conductivity of the aqueous extract determined in the ordinary way. The electrolyte content of the sand has been calculated from the observed conductivity and shown as equivalent to the presence of the indicated percentage of sodium chloride.

No. of Sample.	Percentage of sodium chloride on the sand $\times 10^3$.
1	1.9
2	0.7
3	0.5
4	1.2
5	.42
6	.7
7	.6
8	7.2
9	.26
10	.26

Sand No. 8 only shows an abnormality. This was a specimen received from the Shree Onama Glass Works, Gondia, Central Provinces, and was found

on further examination to be contaminated with soda ash dust. In general the figures under electrolyte content give an indication only of the type of water in which the sand has been washed, or from which it has been deposited and then dried. Discussion of their precise value is not of immediate importance to the purpose of this paper.

(9) *Letter No. 4894/14-26, dated the 17th December, 1931, from Dr. Drane, Harcourt Butler Technological Institute, United Provinces, Cawnpore.*

* * * * *

I am sending you attached a copy of a memorandum dated the 15th December, 1931, which I have prepared regarding the possibility of starting training in Glass Technology at the Institute. This is only a preliminary copy and you will probably receive shortly formal proposals in this connection from the Director of Industries, by which time some minor modifications may have been made.

Enclosure.

Memorandum on the possibility of starting training in Glass Technology at the Technological Institute.

The Tariff Board has enquired whether instruction in Glass Technology can be given at the Technological Institute. The answer is, yes, provided funds are made available and an estimate of requirements is given later.

The establishment of a training centre for the Glass Industry at Cawnpore will simultaneously necessitate the establishment of a research centre for the industry. I would put the functions of the section to be established primarily as research and let the teaching activities grow side by side. The teaching and instructions required will be given by the staff permanently engaged upon research work. I have already explained in pages 28—34 of the memoranda submitted to the Tariff Board dated the 8th December, 1931, the general principles involved in the training of prospective entrants to the Glass Industry on its technical side. I recommend the provision of a staff as below:—

- One Glass Technologist—Rs. 1,600—1,800 (for 3 or 5 years)*.
- One Senior Assistant—Rs. 600—750—1,000.
- Two Junior Assistants (one chemist one physicist)—Rs. 150—200.
- Two studentships for graduate research workers—Rs. 100.
- One Laboratory Assistant—Rs. 75—100.
- One Clerk—Rs. 75—100.
- Two menials—Rs. 30.

With this staff it will be possible to carry out instructional and research work in an adequate and efficient manner. The materials and apparatus required will not be heavy items, much of the apparatus required is already in the Institute. I would however suggest an initial provision of Rs. 7,500 for special equipment and thereafter Rs. 5,000 annually for materials and equipment. An annual provision of Rs. 2,500 will be necessary for travelling allowance of Glass Technologist and his assistants.

The expenses involved for staff and materials according to the scheme outlined above would be Rs. 43,700 for the first year and 42,600 at the end of five years. I consider that after five years the senior assistant would be in a position to take charge of the section and that the services of the Glass Technologist would not necessarily be required after that period.

In considering the provision of funds I think it necessary that a further special grant should be made which would permit the engagement of a consulting furnace engineer to put down at selected places in the various provinces efficient types of furnace. I would suggest the offer being made

* See note at end.

to a selected glass manufacturer in each province of the following service. A furnace designer and builder would be engaged to erect and bring into operation a furnace of efficient design, the proprietors of the factory providing materials and labour and paying all royalties on the use of the furnace. Probably three furnaces set up under such a scheme will set the industry going on an efficient basis. I am not in a position to estimate the expenses which would be necessary under such an arrangement, but the work cannot be done cheaply. Probably Rs. 25,000 represents the minimum charge which will be entailed in obtaining the service noted above from a reputable firm of furnace engineers and builders. The provision in the first year of the establishment of the section would thus require to be increased to 63,700 and thereafter a provision of about 47,600 annually to the end of the fifth year.

The teaching and research activities of the section would be roughly as below :—

(1) *Teaching.*—Graduate students would be accepted for a two years course of training in the principles of Glass Technology. The entrants would preferably be honours students in physical chemistry. Their training during the two years course would be theoretical and practical dealing with the principles of glass manufacture and the examination of materials used in the industry. In my previous memorandum I have explained that I am against setting up a factory at Cawnpore in connection with the training which will be given in the Institute. This was on the grounds of expense and the impossibility of working the furnace continuously and therefore efficiently. This does not however mean to say that small experimental melting furnaces would not be erected and that students would not be trained in their use and management according as funds permitted. The training in the Institute would be supplemented by deputing the students to glass factories (arrangements have already been made with three glass factories in the United Provinces for such training work). After completion of their course suitable students would be eligible for election to one of the studentships at Rs. 100 which would be tenable for one year in the first instance. The number of students which it will be proposed to admit will be three annually and they would be selected from any province in India according to the suitability of candidates presenting themselves. One admission would be reserved annually to a student of the United Provinces provided a student of satisfactory standard presented himself.

(2) *Work of the staff.*—(a) The Glass Technologist would advise glass manufacturers in India regarding improvements in their methods and the materials involved in their manufacture. He would supervise the research work of the staff provided and the training of students in Glass Technology.

(b) The research work carried out by the staff would concern itself (i) with specification of raw materials available in India, (ii) improvement of glass mixtures, (iii) improvement of refractories, (iv) development of mechanical methods of handling. The most success in the research programme might be expected under items (i), (ii) and (iii). Item (iv) would likely be developed most rapidly by actual work in the factories by men who would have received a training in the Institute.

In the figures which I have given for the staff required which I have proposed I have left the provision of junior assistants on a low scale so that good men who may be engaged in these posts shall regard them only as temporary and seek better employment in glass factories. By this process within a period of five years it might be expected that an adequate supply of well trained men would be available to the industry.

In the provision of funds from Central Revenues for the engagement of the staff and the prosecution of the work proposed it is understood that the funds would be provided to the United Provinces Government who would engage the staff directly responsible to them through the authorities of the Technological Institute.

Note.—In fixing a salary for the Glass Technologist I have shown it at Rs. 1,600—1,800 which is the same salary offered to the Sugar Technologist

attached to the Imperial Council of Agricultural Research, and at present quartered in the Institute buildings. The standard of training and attainment required to be possessed by a Glass Technologist for the post considered is in some ways considerably higher than is necessary for a similar post dealing with the sugar industry. Moreover the competent Glass Technologist is a rare specimen is so far that the experience required of manufacturing industry relating to glass and refractories is much less easily required. In view of these facts and that it will be necessary to recruit a European officer, whose expenses would be considerable on a short term contract, it may become necessary and desirable to offer a higher salary, say Rs. 1,750—2,250 with corresponding provision for passages, etc. Furthermore as in the case of the appointment of a Sugar Technologist (who however was a domiciled Indian officer) it may be desirable to depute the recruited Glass Technologist for consultation with furnace designers and manufacturers, and to visit glass works to recuperate his knowledge of modern methods of manufacture which might be applied in India. Such an arrangement would require further additional provision.

Director of Industries, United Provinces.

Letter No. 6897/3, dated the 26th February, 1932.

With reference to your letter No. 685, dated the 19th November, 1931, and my interview with you at Allahabad on 10th December 1931, I have the honour to forward herewith a tentative scheme for imparting instruction in Glass Technology at the Harcourt Butler Technological Institute, Cawnpore, as desired by the Tariff Board. The scheme has been approved generally by the local Government and they are prepared to open a section in Glass Technology at the Harcourt Butler Technological Institute on the clear understanding that the entire recurring and non-recurring expenditure involved is met by the Government of India. I may also add that my estimate of the cost of the scheme supersedes the one embodied in the note of the Principal, Harcourt Butler Technological Institute, a copy of which was sent to you direct by the Principal.

Enclosure.

Rough scheme for the opening of a section of Glass Technology at the Harcourt Butler Technological Institute, Cawnpore.

There are already four sections at Harcourt Butler Technological Institute, viz.: (1) Sugar, (2) Oils, (3) Leather and (4) General applied chemistry. The sugar section is practically financed wholly by the Imperial Council of Agricultural Research and a proposal is afoot that the oil section should be similarly turned into an All-India institution and financed by an All-India Oil Cess Committee. It will be easy, therefore, to open a new glass section at the institute similarly financed by the Government of India for the training of Glass Technologists and chemists for the whole of India. Training in Glass Technology and chemistry will be given in the glass section proper and whatever general training in engineering and chemistry will be required will be given at the general engineering and chemistry sections which are attached to the institute. There is sufficient accommodation at the Institute for lecture rooms and laboratories but sheds will have to be erected in the compound for furnaces and blow rooms, etc. The following staff will be required for giving the necessary training:—

- (1) An expert Glass Technologist on a pay between Rs. 1,000 and Rs. 1,500 per mensem.
- (2) One physicist on Rs. 350—25—600.
- (3) One chemist on Rs. 350—25—600 and possibly,
- (4) An engineer on Rs. 350—25—600.

Furnaces and a small experimental demonstration glass factory shall also have to be opened the cost of which cannot be estimated by me at present but the Tariff Board will probably be able to make an estimate for them.

2. Arrangements will be made for giving training in:

- (1) Glass Technology,
- (2) Glass chemistry, and possibly,
- (3) for training artisans for lower posts in glass factories.

Admissions to the class in Glass Technology will be limited to boys with a degree in engineering and to the class in glass chemistry to boys with a degree in physics or chemistry. Training for the classes in Glass Technology and glass chemistry will extend to two or three years and will consist of a course of practical work in glass factories for two or three months every year in addition to the practical work taught at the demonstration experimental factory.

The duties of the above glass section will be (1) to help the glass factories in the whole of India with practical advice and guidance in technical matters, (2) to give training as stated above, and (3) to carry out experiments, investigations and researches in respect of the Glass Industry problems. For this purpose the head of the section, viz.: the expert Glass Technologist will correspond direct with glass factories all over India and will visit them whenever necessary. One visit per year to a factory will be at Government expense but if the factories need his services again they will have to pay his travelling expenses. Samples submitted by factories for analysis will be analysed and reported upon by the glass section at a moderate charge. In addition problems for experiment, investigation, and research may be submitted by the glass factories to the section and the necessary work will be done free of cost at the section if the results of the researches and experiments are permitted by the factories concerned to be published for general information. If, however, the firms desire the results to be communicated to them only and to be kept secret otherwise they will have to pay fees to be fixed by negotiation in each case.

3. Admissions to the glass section will be open to candidates from all over India and if the number of applications is greater than the number of vacancies they will be made by means of a competitive examination. The admissions should be restricted, in the first instance, to not more than three in the class for Glass Technology and one for the class in glass chemistry.

4. The whole of the recurring and non-recurring cost will be met by a subsidy from the Government of India to the Government of United Provinces and the staff of the glass section will be entirely under the control of the local Government. In return for this financial aid the Government of United Provinces will place the services of the general engineering and chemistry sections of the Harcourt Butler Technological Institute at the disposal of the glass section and will give accommodation for the class rooms and laboratories in the Harcourt Butler Technological Institute building. They will also throw open admissions to the training to boys from the whole of India.

5. For the proper administration of the glass section and the co-ordination of its work with the problems of the industry the head of the glass section will be assisted by an Advisory Committee which will consist of the following:—

1. A representative of the Government of India Chairman.
2. The Principal of the Harcourt Butler Technological Institute, Cawnpore Member.
- 3—6. Representatives of glass manufacturers from (1) Bombay, (2) Punjab, (3) United Provinces and (4) Central Provinces ”
7. The head of the glass section ”
8. Deputy Director of Industries, United Provinces in charge of technical education ”
9. One of the assistants in the glass section Secretary.

6. If the staff proposed above is approved then the ultimate recurring cost of maintenance may be estimated to be somewhat as follows:—

	Per mensem.
	Rs.
1. Glass Technologist	1,500
2. Three assistants	1,800
3. Three laboratory assistants	150
4. Three clerks and three peons	225
5. Travelling allowance and contingencies	1,000
6. Running expenses of the experimental factory (guess work)	2,500
7. Unforeseen expenses	125
Total	7,300

7. This section will remain in existence for at least six years, in the first instance, and it should be continued thereafter only if the glass trade desires it to be continued and agrees to contribute something towards its expenses.

Director of Industries, Bombay.

Letter dated the 10th March, 1932.

I have the honour to send herewith a note on the protection to Glass Industry. The views expressed therein are my own and do not in any way commit the Government of Bombay.

Enclosure.

NOTE ON THE PROTECTION TO GLASS INDUSTRY SUBMITTED BY THE DIRECTOR OF INDUSTRIES, BOMBAY.

Introduction.

Glass is an important factor in civilisation. A moment's reflection will show the dependence of a nation on glass. During the last two decades glass has found so many applications in Arts and Industries that no nation can do without glass in all its forms in both peace and in war and so Glass Industry can very reasonably be considered to be a basic industry for the nation. Everything should therefore be done to encourage its development and expansion.

Glass Industry of the Bombay Presidency.

2. There are 6 glass factories in this Presidency. These factories give employment to nearly 1,000 workmen and involve an investment of nearly Rs. 6 lakhs. Over and above these factories there are cottage factories scattered all over the Presidency which manufacture glass bangles and small glass articles like oil containers for crude lamps, lead mirrors for embroidery purposes, etc. More than 250 workers are engaged in the cottage industry. A fairly good amount of pioneering work for the industry has already been done and so there will not be any difficulty in developing and expanding the industry. The 6 factories mentioned above produce the various articles mentioned below.

(a) *Globes, chimneys, jars and other hollow-wares.*—There are 4 factories in this Presidency for the manufacture of these articles giving employment to at least about 500 persons. The total output in all these factories can be safely put down at Rs. 3,50,000 per year. About 40 per cent. of the total

Indian imports of globes, chimneys, etc., come to this Presidency. It is well known that a large part of glass articles imported into this country is of second class quality and so in most cases these articles are sent at a price lower than the actual cost of production. Investigations have revealed that as far as globes and chimneys are concerned Indian goods have come up to the standard of most of the imported goods. But due to sentimental reasons based on false logic and impressions the Indian goods do not fetch the same price as the foreign goods. Hence it has been found that in most cases the retail and wholesale prices of Indian goods have to be kept somewhat lower than the imported ones. This to an outsider would give the impression that there does not exist any foreign competition. This impression, however, is not correct. The prices of foreign goods determine to a great extent the prices of the goods manufactured locally and due to the reasons given above the Indian manufacturer is not able to realise full value for his articles.

(b) *Glass Bangles.*—Glass bangle manufacture is being and has been carried on as a cottage industry in all the three divisions of the Presidency for a long time. The total number of bangles manufactured by the cottage workers can be safely put down at about 15 lakhs dozen pairs of bangles per year worth about Rs. 80,000. This cottage industry gives employment to nearly 200 workers. Recently, however, a big factory has been started at Kandivli, one of the suburbs of Bombay. The total annual output of this factory is about 36 lakhs dozen pairs of bangles worth about Rs. 2 lakhs and 60 thousand. This factory gives employment to nearly 400 persons. This Presidency is the largest importer of glass bangles in this country. More than 64 per cent. of the total Indian imports come to Bombay. This means that on the average this Presidency imports pretty nearly Rs. 50 lakhs worth of bangles every year. There is, therefore, a big scope for this industry in the Bombay Presidency.

(c) *False pearls, glass beads, etc.*—Recently a factory was started in Bombay for the manufacture of false pearls and glass beads, etc. The factory started manufacturing false pearls in April, 1931, and was able to compete with similar Japanese articles for some time. But when the Japanese knew that a false pearls factory had been working in Bombay they began to cut down their prices and so the factory is working at a loss at present and will have to be closed down if reasonable protection is not granted.

(d) *Soda water bottles.*—Recently the Gomptipur Glass Works at Ahmedabad has started to manufacture soda water bottles on a small scale. The quality of the bottles produced by this firm is improving from day to day and it has been found that these bottles are gaining in demand at a very slow but steady rate. The firm has to compete with the manufacturers abroad who have been manufacturing these bottles for a considerable length of time and so this industry also needs protection.

Conditions laid down by the Fiscal Commission.

3. Conditions laid down by the Fiscal Commission are met by the industry as shown below.

(a) *Raw materials.*—The main raw materials for the manufacture of glass are silica, soda, potash, lime, borax, magnesia, zinc oxide, boric acid, arsenic oxide, alumina, magnesium oxide, etc., and colouring agents in the form of salts of various metals.

Most of the raw materials are at present available in this country in sufficient quantity. The only important raw material which is not produced at present in this country is soda ash but it will not take much time to produce soda ash in this country as the raw materials for its manufacture are available in India in abundance.

It will not be out of place to mention something about the development of Glass Industry in Japan. Japan's Glass Industry dates from remote antiquity. Even western style of glass is said to have been manufactured in Japan during the early part of 17th century, and there are some

factories at present which started business as far back as the 18th century. Up to the middle of the 19th century Glass Industry was more or less a sort of a cottage or semi-factory industry. During the latter part of the 19th century Glass Industry of Japan came to assume the form of a factory industry and since then various glass factories have sprung up mostly round about Tokyo and Osaka. It was however after the outbreak of the world war that Japan's Glass Industry became modernised and renovated in technique, equipment and management. As a result of this the number of factories increased during that period, *i.e.*, 1914-19 by 180 per cent., the total number of workers increased by 120 per cent. and the total output of glass and glass materials by 900 per cent. The depression which came after the war brought about a fall in the prices and weeded out many small and uneconomical factories and thus brought the Glass Industry of Japan to stand on a firm basis. In 1927 the output of glass and glass materials amounted to 44 millions yens, *i.e.*, nearly 5 times as much as the figure for 1914.

One of the outstanding factors that have elevated Japan's Glass Industry to the present condition is to some extent the activity of export business. During the period 1914-17 more than 55 per cent. of the output was exported. In 1916 the export figure reached as high as 70 per cent. of the output. After the world situation became normal the exports were reduced until they reached a fairly constant figure of about 42 per cent. of the total of Japan's output. All these developments in the Glass Industry of Japan are due to the artificial protection given by the world market conditions caused by the last Great war. Japan does not possess all the essential raw materials for the Glass Industry and in spite of this she has been able to develop the Glass Industry to such an extent that she is able to supply almost all her demands of glass and glass materials and exports nearly 42 per cent. of her total output. Even countries like United States where Glass Industry is highly developed are importing to some extent from Japan. This wonderful development of Glass Industry of Japan in spite of the fact that Japan has to use almost exclusively soda ash imported from East Africa. The imports of soda ash from East Africa amount to nearly 2.2 million yens equivalent to about 30 lakhs of rupees per year. Besides this Japan has to import nearly 600,000 yens (nearly 8 lakhs of rupees) worth of Borax, from foreign countries, a large part of which is used in the Glass Industry.

From the above it will be seen that the unavailability of soda ash in India for glass manufacture cannot be considered a factor that goes against the development of Glass Industry here. To a great extent India is in a far better position than Japan with regard to both soda ash and borax. India has abundant supply of raw materials that are required for the manufacture of soda ash and borax, while Japan has almost none. As the country will develop industrially soda ash will be produced in India in large quantities to supply not only the demand of India alone but for export to the nearby countries like Malay States, Siam, etc. Natural soda lakes of Sind and Central Provinces and other parts of the country have not been investigated thoroughly and worked on the lines of Searls Lake in California and Magadi Lake in the British East Africa. A time will no doubt come when difficulties in exploiting these natural sources of soda ash will be overcome and the lakes will be exploited for obtaining soda ash which can be used for the Glass Industry.

(b) *Cheap Power*.—Cost of power as such constitutes only a very small part of the total cost of production of glass. The cost of fuel however is one of the most important factors. The cost of fuel constitutes nearly 15 to 25 per cent. or more of the total cost of production of glass depending upon its price. Materials that can be used as fuel for Glass Industry are abundant in this country and are available at reasonable prices.

(c) *Labour*.—Supply of unskilled labour is unlimited and there is not the slightest possibility of there being a shortage. Skilled labour will be trained as industry will progress as has been the case with the recently developed industries like the Match Industry, etc. Even the Glass Industry in its

present depressed condition has been able to train its skilled workmen and for the manufacture of ordinary articles the industry is not experiencing any difficulty as far as skilled and unskilled labour is concerned.

(d) *Home market.*—The consumption of glass and glassware in India is increasing day by day. As a country advances in education and habits of living this increase will continue. The total value of imports of glass and glassware during the last 5 years has remained practically constant namely Rs. 250 lakhs per year. In spite of the expansion of the glass factories and the increase in output of the Indian factories the imports have remained more or less constant in value. This shows that the consumption of glass and glassware is increasing. It has been estimated that the total value of output of all the glass factories in India, can be safely put down at Rs. 50 lakhs per year. This means that the value of the present annual consumption amounts to nearly Rs. 300 lakhs. From this it will be seen that the present home market is quite adequate for developing the industry on a very large scale. Again the per capita consumption of glass in this country is very low when compared to that in other countries. This as mentioned above is bound to increase, hence the potential home market is going to be enormous.

(e) *Protection is essential.*—Indian Glass Industry is more or less in its infancy. Most of the pioneering work on the manufacture of glass has been done in Europe and America and during the last couple of decades Japan also has come to the forefront in developing the Glass Industry. European factories have the advantage of experienced workers working in the factories from generation to generation. The *per capita* consumption of glass of the European countries as well as of America and Japan is comparatively very high. The buying power of the people in those countries is also higher than the buying power of the people in this country. The manufacturers in those countries also enjoy the privilege of being exporters. The foreign manufacturers have also the advantage of having bigger units for their factories and are thus able to run the industry efficiently. They also make substantial profits from their home markets and so it is possible for them to export the goods at cheaper prices or even at the cost of production. It is also reported that most of the glass articles that are imported into this country are not of first class quality. They are produced as a sort of by-product (commonly known as second class goods) while manufacturing the first class goods and so it is natural that they can afford to sell the second class articles at considerably lower rate than even the actual cost of production. All these factors work against the manufacturers in India. Hence, without adequate protection for a considerable period of time the Glass Industry cannot be developed.

(f) Ultimately the industry will be able to face the world competition. The mineral resources of India can supply enormous amount of raw materials for the production of glass and glass materials not only for the entire demand of India but even for export. As mentioned above one of the important raw materials, i.e., soda ash is not produced in this country at present. But there are abundant supplies of raw materials for the manufacture of soda ash here. As glass and other industries that use soda ash in large quantities will develop the sources for its manufacture will be tapped and the country will soon become self-sufficient as regards raw materials. With the increase in the number of trained workers and the increase in the local demand for glass and glass materials bigger units for manufacturing glass will come into existence and the industry will in due course of time be able to face the world competition.

Protection in some other countries.

4. From what has been said above it will be seen that Glass Industry fulfils all the conditions laid down by the Fiscal Commission for the grant of protection for an industry. Adequate protection should, therefore, be granted to the Glass Industry for a definite period of years. Before making suggestions in this matter it may be of interest to note the degree of protection given in the United Kingdom and United States of America.

(a) *Protection in the United Kingdom.*—United Kingdom which has been advocating free trade for several decades past has, due to the keen competition from foreign countries, put tariff duty on all articles of glassware and products made from glass by passing the Abnormal Importation Custom Duties Act of 1931 which provides the imposition of import duties not exceeding 100 per cent. on goods included in Class 3 of the Customs Schedule. The following goods *inter alia* have been brought within the scope of the above Act, the rate of duty being 50 per cent:—

- (1) Domestic glassware including utensils.
- (2) Table glassware.
- (3) Ornamental and toilet glasswares.
- (4) Glass bottles.
- (5) Glass jars (other than scientific glasswares) not containing merchandise.

On laboratory glasswares such as beakers, flasks, barometers, measuring cylinders, glass tubing, etc., the duty is 33½ per cent.

(b) *Protection in the United States of America.*—The United States Tariff Commission has carefully investigated and surveyed the question of protective tariff on glass and glasswares and on window glass and cast polished glass. After investigating the cost of production of glass and of the above mentioned commodities both in the United States of America and in foreign countries they have prepared an elaborate schedule of protective duties on various articles made from glass and on glasswares.

The following table shows the rate of duty charged on some important items:—

Articles.	Duty.	Which works out at
Empty bottles, phials, jars, etc.—		
Holding less than ¼ pint	50 cents per gross	61.44 per cent. <i>ad valorem.</i>
Holding not less than ¼ pint	1½ cent per lb.	18.05 per cent. <i>ad valorem.</i>
Holding 1 pint or more	1 cent per lb.	22.57 per cent. <i>ad valorem.</i>
Chemical and scientific glasswares	65 per cent. <i>ad valorem.</i>	....
Illuminating glasswares—		
Chimneys	55 per cent. <i>ad valorem.</i>	....
Globes, shades	70 per cent. <i>ad valorem.</i>	....
Blown glass tablewares and cut glass- wares.	60 per cent. <i>ad valorem.</i>	....
Blown glass toilet bottles	75 per cent. <i>ad valorem.</i>	....
Cylinder crown and sheet glass unpolished	1½ cent per lb. to 3½ cents per lbs. according to size and thickness of the glass.	Which works out at 50 to 112.91 per cent. <i>ad valorem.</i>
Cast polished unsilvered plate glass	85 per cent. <i>ad valorem.</i>	....
Same containing wire netting	105.19 per cent. <i>ad valorem.</i>	....

The schedule is not quite exhaustive. The above mentioned are some of the important items. From this it will be seen that even in the highly

industrialised countries like the United Kingdom and the United States of America the competition from glass producing countries like Belgium, Japan and Czechoslovakia has been keenly felt and the respective Governments have imposed adequate duty on the imported glass and glass articles varying from about 20 per cent. to 120 per cent. *ad valorem* to protect the home industry.

Protection recommended for India.

5. (a) *Globes, chimneys, hollow-ware, etc.*—From what has been stated above with regard to manufacture of these articles in this Presidency it will be seen that protection is needed by the manufacturers of these articles. All the glass factories manufacturing these articles in this Presidency are unanimous in their demand for protection. They all believe that 60 per cent. duty for about 10 years will be adequate and reasonable for the development and expansion of that particular line of the Glass Industry.

(b) *Glass Bangles.*—Investigations have been made to find out the cost of imported bangles and the cost of production of the bangles manufactured in this Presidency. After comparing the prices it has been found that unless protection in the form of 100 per cent. import duty is given to the bangle industry there will not be any chance for the present cottage factories as well as the big factory at Kandivli to continue working. It is, therefore, desirable that a protective duty of 100 per cent. should be imposed on imports of glass bangles.

(c) *False pearls and beads.*—Manufacture of these articles has been started quite recently. False pearls and beads are more or less articles of luxury. It is estimated that 100 per cent. duty on these articles will be necessary to establish the industry and keep it going and expanding.

(d) *Soda Water Bottles.*—Soda water bottles could have been put under the heading "Globes, chimneys, hollow-ware, etc.", but as the manufacture of soda water bottles has been started only recently a great deal of preliminary experimental and pioneering work remains to be done. A representative of the factory manufacturing soda water bottles in this Presidency thinks that he will be able to make both ends meet if there is a duty of 75 per cent. on the imported soda water bottles.

Other assistance suggested.

6. (a) *Training and research.*—To build up and develop the industry, protection alone will not bring the desired results. Over and above adequate protection, the industry requires expert advice and the help of research workers to solve problems of glass chemistry and Glass Technology which arise from time to time. It also requires a supply of technically trained young men who after working for some time in the factories can take up responsible positions in the industry. This need of the industry can only be supplied by the establishment of a Central Institute of Glass Technology and Research. All the countries where Glass Industry has developed to some extent have found it absolutely necessary to have schools, colleges, technical schools and technological institutes for training—specialists, foremen, research workers and for taking up research and allied problems that have to be solved in order to develop new methods and processes in the manufacture of glass and glass articles. These institutions also take up problems connected with the utilization and standardisation of local raw materials and in short serve as general, scientific and technical advisory bureaux for the entire Glass Industry of the particular country.

There are nearly 5 such institutions of importance established in Czechoslovakia, more than 5 in Japan, about 8 or 9 in United States of America and several in the United Kingdom, Germany, France, Belgium, Italy, etc. Over and above this certain Universities in some of the above mentioned countries have departments of Glass Technology where undergraduate students are trained in Glass Technology to fill responsible technical position in glass works. In order, therefore, to put the Indian Glass Industry on a sound and permanent basis, establishment of at least one Institute

for Glass Technology and glass research is quite essential. Such an Institute must give both technical training and carry on research work on important problems of glass chemistry and Glass Technology. It should be established at a central place in connection with an important existing technical institute. The Victoria Jubilee Technical Institute, Matunga, Bombay, is recommended to be considered as a suitable Institute for the purpose.

(b) *Import of raw materials, free of duty.*—It is also necessary that the cost of the raw materials should be as low as possible. The main raw material for the Glass Industry in this country which is to be imported at present from foreign countries is soda ash and so in order to bring down the cost of this material it is recommended that it should be allowed to come into India duty free.

Summary of the Recommendations.

7. Summarising, it is recommended,

- (1) that a 100 per cent. *ad valorem* duty on glass bangles and false pearls, glass beads, etc., should be imposed;
- (2) that a duty of 60 per cent. on globes, chimneys, jars and other hollow-wares should be imposed;
- (3) that a duty of 75 per cent. should be imposed on soda water bottles;
- (4) that the above duties should be imposed for a period of 10 years in the first instance;
- (5) that the import duty on soda ash should be dropped;
- (6) that a central training and research institute for Glass Industry should be established in conjunction with an existing Technical Institute like the Victoria Jubilee Technical Institute, Matunga, Bombay.

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- (1) *Letter No. 734, dated the 14th December, 1931, from the Secretary, Tariff Board, to the Commissioners of Excise, Bombay, Assam, Bengal, Bihar and Orissa, Central Provinces, Madras, United Provinces, Burma and Punjab.*

I am directed to refer to the Government of India, Commerce Department, Resolution No. 458-T. (2), dated the 20th October, 1931, in which an Enquiry into the Glass Industry has been referred to this Board.

2. The Board has received representations from importers of glass bottles to the effect that bottles of Japanese or Indian manufacture are usually condemned by Commissioners of Excise on the ground that they are not uniform in their containing power. For example it is stated in Bengal that the minimum quart is 22 ounces filling weight half brimful and the minimum pint 11 ounces half brimful. According to the representations bottles of European manufacture do not vary more than 0.3 per cent. I am to ask if you will be good enough to inform the Board whether in your opinion the contention of the importers is correct and also if you will give your views generally on the relative merits of Indian and imported bottles for excise purposes.

3. The Board would be grateful if your reply together with six spare copies could be sent at the earliest possible date. It should be addressed to the Secretary, Indian Tariff Board, Town Hall, Bombay.

Commissioner of Excise and Salt, Bengal.

Letter No. 8186-E., dated the 18th December, 1931.

I have the honour to acknowledge receipt of your letter No. 734, dated the 14th December, 1931.

2. So far as Bengal is concerned, the representation from the importers of glass bottles that bottles of Japanese or Indian manufacture are usually condemned by the Excise Commissioner, is incorrect and no bottles, whether Japanese, Indian, or of other countries, have been condemned by this Department in Bengal.

3. In Bengal, the Government have prescribed minimum contents of quarts and pints of spirits, offered for sale to the public. It has not been ruled that bottles containing spirits must be uniform in their containing power. It has been ruled here that bottles of spirit, offered for sale, and reputed to contain a quart of liquor must not contain less than 22 ounces of spirit and bottles reputed to contain a pint of liquor must not contain less than 11 ozs. of spirit.

I am sorry, I am unable to give any views on the relative merits of Indian and imported bottles for Excise purposes. The Excise regulations in this Presidency do not prescribe any particular quality or size of bottles and it is for the dealers to choose whichever bottles they prefer for bottling their spirits.

Commissioner of Excise and Salt, Bihar and Orissa.

Letter No. 10138-E./XXII-11 of 1931-32, dated Patna, the 5th January, 1932.

With reference to your letter No. 734, dated the 14th December, 1931, I am directed by the Commissioner of Excise to state that vendors in this province are compelled to bottle exact quantities of 20, 10 and 5 liquid ozs. measured by measures graduated by the Mathematical Instruments office, which they are required to keep for the purpose and that they are allowed to put these quantities into any bottles they can obtain big enough to contain them. Consequently there neither has nor will be any occasion to decide the merits of different kinds of bottles and the Commissioner of Excise has no opinion to express on the subject.

Excise Commissioner, Central Provinces and Berar.

Letter No. G./118, dated the 8th January, 1932.

With reference to your letter No. 734, dated the 14th December, 1931, I have the honour to say that the questions mentioned by you have not arisen in this province and no complaints have been received of any particular country's bottles being unsuited to excise purposes. Uniformity of capacity is generally irrelevant, for the bulk of bottling is in respect of country spirit which is sold bottled only in quantities of 3 drams or 6 drams (10 and 20 ounces respectively) so that the bottles are never filled, and nominally 11 or 22 ounce bottles, even if not uniform, would leave a sufficient margin. In practice, the bottling contractors obtain their bottles locally or from Bombay and these are generally used whisky or beer bottles, mostly of European manufacture, but Indian-made bottles are also extensively used.

2. As regards foreign liquor, the bottling license contained a condition that bottles of less than 12 ounce capacity should not be used, but it was represented that difficulty was found in obtaining uniform bottles of such capacity in the local market and the demand did not, in some places, justify wholesale purchases from outside the province. The condition was therefore relaxed and 11 ounce has been fixed (as in the United Provinces and Punjab) as the minimum capacity of the bottles. Such bottles are obtained locally by some bottlers (*viz.*, old beer bottles), and one firm specially imports its bottles from England. The difficulty in respect of uniform 12 ounce bottles was not ascribed particularly to bottles of Japanese or Indian manufacture.

Excise Commissioner, Burma.*Letter No. 3X/2-E-3 of 1931, dated the 11th January, 1932.*

In reply to your letter No. 734, dated the 14th December, 1931, I have the honour to state that I have never heard of any case in Burma in which bottles of Japanese or Indian manufacture have been condemned on the ground that they are not uniform in their containing power. In Burma uniformity in containing power is not insisted upon, but if any bottle purporting to contain a quart or a pint respectively of foreign spirit contains less than 26 ounces of spirit in the case of a quart and less than 13 ounces in the case of a pint, it must bear a label showing in large letters and figures the minimum guaranteed quantity of the contents.

I regret I have no views to offer regarding the relative merits of Indian and imported bottles for excise purposes, as the question has never arisen in this province.

Commissioner of Excise, Bombay.*Letter dated the 26th January, 1932.*

With reference to your letter No. 734, dated the 14th December, 1931, I have the honour to state that so far as the Bombay Excise Department is concerned there is no restriction on the use of bottles of Japanese or Indian manufacture on the ground of their capacity. For Excise purposes generally it is immaterial whether Indian or imported bottles are used.

Commissioner of Excise, Madras.*Letter dated the 26th January, 1932.*

Reference:—Letter No. 734, dated the 14th December, 1931, from the Secretary, Tariff Board.

I am to inform you that the Commissioner is not able to give his opinion as no maximum or minimum capacity has been fixed for bottles used for excise purposes in this Presidency.

2. The Commissioner understands that when the Government Industrial Institute, Madras, was engaged in the manufacture of fluid inks much difficulty was felt in obtaining stoneware jars or containers as well as glass bottles of uniform capacity. Glass bottles which were obtained from Northern India were also found to be defective in other ways such as presence of air bubbles, misshapen appearance and alkalinity of the glass.

Commissioner of Excise, Assam.*Letter No. 4589-E., dated Shillong, the 26th January, 1932.*

In reply to your letter No. 734, dated the 14th December, 1931, I have the honour to say that in spite of every effort to obtain satisfactory bottles manufactured in India I have hitherto been compelled to obtain my requirements from Europe. The samples of Indian bottles received were entirely unsatisfactory from every point of view except price. The glass was poor and full of flaws, the shapes uneven and the thickness not uniform. I enclose a copy of letter No. H.-255/M, dated the 14th November, 1930, from the Chief Controller of Stores, Indian Stores Department, New Delhi. The degree of variation in cubic capacity indicated by the firm quoted by the Chief Controller was far below what the samples offered led us to

expect, and it is in the highest degree unlikely that the supply would be up to this standard, which itself was considerably below the standard required. The further communication promised by the Chief Controller stated "it is clear from the result of enquiries made by this Department that the bottles cannot be manufactured in India to the required degree of accuracy":

Enclosure.

Copy of letter No. H.-255/M., dated the 14th November, 1930, from the Chief Controller of Stores, Indian Stores Department, to the Commissioner of Excise, Assam, Shillong.

Subject:—BOTTLES.

With reference to your letter No. 3514-E., dated the 3rd November, 1930, I have the honour to say that this office called for quotations from all the well known Indian Manufacturers of glassware but all with one exception state that they do not manufacture liquor bottles. One firm state that they can make bottles but that the sizes will not be exact and may vary from $\frac{1}{2}$ oz. to 1 oz. Will you please let me know immediately if a variation up to 1 oz. would be acceptable to you.

In the meantime I am making enquiries in Calcutta and Bombay for imported bottles and will let you know the result as early as possible.

Letter No. 690, dated the 19th November, 1931, from the Secretary, Tariff Board, to the Collectors of Customs.

I am directed to refer to Government of India, Commerce Department's Resolution No. 458-T. (2), dated the 20th October, 1931, and to ask if you will be good enough to supply the Board with the following information:—

- (1) Is it possible to obtain figures of quantities and values of annual imports at your port for plate glass and sheet glass separately? If so, please give the separate figures for each year 1928-29, 1929-30, 1930-31. If not, can you estimate approximately the proportion in quantity or value between plate glass and sheet glass imports at your port?
- (2) Please supply recent invoice prices of—
 - (a) Sheet glass.
 - (b) Plate glass.
 - (c) Lantern globes.
 - (d) Bangles.

It will be sufficient to quote the prices of a few predominant varieties.

2. The Board hopes that you will be able to send your replies so as to reach the Board's office at an early date and in any case not later than the 20th December. They should be sent, together with six spare copies, to the Secretary, Indian Tariff Board, 1, Council House Street, Calcutta.

Collector of Customs, Karachi.

Letter No. C. Ho. 1985/31, dated the 4th December, 1931.

I have the honour to refer to your letter No. 690, dated the 19th ultimo.

2. The enclosed statements A and B contain the information asked for by you.

Enclosure.

"A."—Statement showing imports of sheet glass and plate glass during the three years ending 1930-31.

Sheet glass.			Plate glass.		
Sq. feet.	Cwts.	Value. Rs.	Sq. feet.	Cwts.	Value. Rs.
1928-29.					
2,488,567	23,720	2,44,966	196,276	3,207	80,208
1929-30.					
1,163,866	13,583	1,51,292	116,841	3,173	90,795
1930-31.					
2,072,470	20,546	1,94,888	86,454	1,905	80,050

"B."—Statement showing c.i.f. invoice prices of (a) Sheet glass, (b) Plate glass, (c) Lantern globes and (d) Bangles at Karachi.

s. d.
Per case.

(a) Sheet glass—a case of 50 sq. feet—

(1) Plain—					
8" x 10", 10" x 12" and 12" x 14"					4 0
12" x 16", 14" x 16", 14" x 18", 16" x 18", 16" x 20", 16" x 22", 18" x 24" and 20" x 24"					4 8
					Per sq. foot.
(2) Figured glass white					0 4
(3) Figured glass coloured					0 5

(b) Plates glass—

(1) $\frac{1}{4}$ " thick, 24" x 48" and 36" x 48"					0 10
(2) Silvered plate glass, $\frac{1}{4}$ ", unbevelled—					
6" x 8", 7" x 9", 9" x 12", 10" x 14" and 8" x 10"					1 0
12" x 16", 14" x 18", 16" x 22", 18" x 24" and 12" x 24"					1 4
12" x 36", 18" x 36", 24" x 36", 18" x 48", 15" x 48", 24" x 48", 30" x 48" and 36" x 48"					1 8
(3) Looking glass, bevelled, $\frac{1}{2}$ " thick—					
6" x 8", 7" x 9", 8" x 10", 9" x 12" and 10" x 14"					1 4
12" x 16", 14" x 18", 16" x 22", 18" x 24" and 12" x 24"					1 6
12" x 36", 18" x 36", 24" x 36", 18" x 48", 15" x 48", 24" x 48" and 30" x 48"					1 11

), Cents per dozen.

(c) Lantern glass globes from America—

(1) Delite					\$1-24
(2) Little wizard					\$0-95
(3) Junior					\$0-95

s. d.

Per dozen.

Lantern glass globes from Germany Feuerhand brand—

No. 252					2 6
No. 270					2 5
No. 260					5 4

Lantern glass globes from Japan.—Imports are rare at this port at present. The former price was Yen 1.08 per dozen.

(d) Bangles.—Prices are not available, the negligible imports that take place here being solely intended for the up-country market.

Collector of Customs, Rangoon.

Letter No. 683 of 1931, dated the 9th December, 1931.

I have the honour to refer to your letter No. 690, dated the 19th November, 1931.

The information required by you is given in the statements marked I and II attached herewith.

Enclosure.

STATEMENT No. I.

		Sq. ft.	Cwts.	Value Rs.
1928-29	Plate glass	275,552	6,465	1,45,630
	Sheet glass	1,570,283	15,684	1,62,610
1929-30	Plate glass	194,227	4,842	1,07,776
	Sheet glass	1,833,246	19,078	1,92,783
1930-31	Plate glass	174,468	4,192	92,459
	Sheet glass	1,297,087	12,669	1,27,682

STATEMENT No. II (A).

SHEET GLASS.

I have obtained two lists (attached) for 16/18 ozs. and 24 ozs. and other special glass. List I with values before the removal from the Gold Standard and List II after the removal. In the case of the 16/18 ozs. and 24 ozs. the invoice for a consignment of more than one categories does not show separate values, but an average is quoted.

Other qualities are—

32 ozs. at 4½d. per sq. ft. c.i.f.

21 ozs. at 2½d. per sq. ft. c.i.f.

54 ozs. at 74s. per 100 sq. ft. c.i.f.

With the exception of the last item 54 ozs. for which 85s. 3d. is now quoted the other two are the prices before the removal from the Gold Standard. The new quotations for these two have not been decided upon. The above are all Belgian manufacture. Nitrea sheet glass from Czechoslovakia is also largely imported in 24 ozs. and 32 ozs. There are no quotations for these. Specification of indents are sent to the manufacturers who quote by cable.

List I.

Best Belgian Flat Drawn Window Glass, 4th quality.

Categories.	Rangoon.	
	50 sq. ft.	
	16/18 ozs.	24 ozs.
0"/25" un. in.	3 10	5 9
26"/40" "	4 7	6 11
41"/50" "	5 2	7 9
51"/60" "	5 4	8 0
61"/70" "	5 7	8 5
71"/80" "	6 1	9 2
81"/85" "	6 5	9 8
86"/90" "	6 10	10 1
91"/95" "	7 11	11 10
96"/100" "	8 6	13 0
101"/110" "	9 6	14 3
111"/120" "	10 10	16 3

STATEMENT II (A)—*contd.*

All these figures are to be understood for ordinary makers' packing—
Paper between the sheets included.

Extras:

- 3½*d.* per pair for outside battens.
- 6½*d.* per case for outside battens going all round the cases.
- 3*d.* per case for 3 compartments cases.
- 6½*d.* per case for broad cases.

Special Glass.

- Ribbed rolled glass, ⅜" thick, 2½*d.* per sq. ft.
- Ribbed rolled glass, ½" thick, 2¾*d.* per sq. ft.
- Rough rolled wired glass, ½" thick, 4½*d.* per sq. ft.
- Figured glass, white, 2¾*d.* per sq. ft.
- Figured glass, coloured, 3¾*d.* per sq. ft.

Packing: In 250 sq. ft. cases with corrugated paper between the sheets.

Prices: c.i.f.c.i. above stated harbours.

Insurance: F.P.A. excluding breakage.

Shipment: Within 6/8 weeks u.o. according to quantities.

LIST II.

Best Belgian Flat Drawn Window Glass, 4th quality.

Categories.	Item 3.	
	50 sq. ft.	
	16/18 ozs.	24 ozs.
0"/25" un. in.	4 9	7 2
26"/40" ,,	5 10	8 9
41"/50" ,,	6 7	9 10
51"/60" ,,	6 9	10 1
61"/70" ,,	7 2	10 9
71"/80" ,,	7 6	11 4
81"/85" ,,	7 11	11 11
86"/90" ,,	8 4	12 6
91"/95" ,,	9 8	14 7
96"/100" ,,	10 6	15 9
101"/110" ,,	11 11	17 9
111"/120" ,,	13 6	20 3

Item No. 3: c.i.f.c.i. Rangoon.

All these figures are to be understood for ordinary makers' packing—
paper between the sheets included.

Extras:

- 4½*d.* per pair for outside battens.
- 8½*d.* per case for outside battens going all round the cases.
- 4*d.* per case for 3 compartments cases.
- 8½*d.* per case for broad cases.

STATEMENT II (A)—concl'd.

Special Glass.

- Ribbed rolled glass, $\frac{3}{8}$ " thick, 3½d. per sq. ft.
 Ribbed rolled glass, ½" thick, 3½d. per sq. ft.
 Rough rolled wired glass, ½" thick, 5½d. per sq. ft.
 Figured glass, white, 3d. per sq. ft.
 Figured glass, coloured, 4½d. per sq. ft.

Packing: In 250 sq. ft. cases with corrugated paper between the sheets.

Prices: c.i.f.c.i. above stated harbours.

Insurances: F.P.A. excluding breakage.

Shipment: Within 6/8 weeks u.o. according to quantities.

STATEMENT II (B).

PLATE GLASS.

Not under ¼"—

¼ ft. Sup.	Area,	13d.	
1	"	"	20d.
2	"	"	24d.
3	"	"	36d.
5	"	"	45d.
7	"	"	51d.
10	"	"	54d.
15	"	"	56d.
25	"	"	57d.
50	"	"	60d.
75	"	"	63d.
100	"	"	67d.

Current discount 70 per cent.
 100 sq. ft. cases 5d. per sq. ft. with a minimum
 of 6s. 5d. per case.
 250 sq. ft. cases free.
 Bolts charged extra at cash of 2s. 4d. per case
 c.i.f.c.i.

$\frac{5}{16}$ "— $\frac{3}{8}$ "—

1s. 8d. sq. ft. (up to 25 sq. ft. per sheet)	} c.i.f.c.i.
1s. 9d. sq. ft. (26 to 50)	
1s. 10d. sq. ft. (51 to 75)	
1s. 11d. sq. ft. (75 to 100)	

There is also an additional special insurance for breakage of 10 per cent.

I am informed that there is a ring formed in the case of this plate glass and so there is one price whether United Kingdom or Continental make.

The above are prices before the removal from the Gold Standard. The new rates have not been received as yet.

STATEMENT II (C).

LANTERN GLOBES.

German.

Dietz—

- "Junior" No. 252 at 2s. 3d. doz. c.i.f.
 "Wizard" No. 260 at 2s. 8d. doz. c.i.f.
 "Little wizard" No. 270 at 2s. doz. c.i.f.
 "Blizzard" No. 262 at 2s. 9½d. doz. c.i.f.
 "Blizzard" No. 323 at 2s. 9½d. doz. c.i.f.

Japanese.

No description but is made to fit Dietz "Junior" No. 252.
 Value Sen 78 doz. c.i.f.

STATEMENT II (C)—*contd.**American.*

Dietz—

“D'Lite” at \$1.29 doz. c.i.f.

“Fetzall” at \$1.29 doz. c.i.f.

“Junior” at \$0.98 doz. c.i.f.

The above prices are prior to the removal from the Gold Standard. In the case of the German—23½ per cent. more is now demanded. Japan remains the same. American—so far no change, but the bills are now drawn in dollars without cross rate into sterling.

STATEMENT II (D).

GLASS BANGLES.

Lustre plain at As. 12 gross less 5 per cent. c.i.f.

Lustre embossed at As. 1-11¼ doz. less 5 per cent. c.i.f.

Tube at As. 1-10 doz. less 5 per cent. c.i.f.

All others (imitation gold) at As. 2-8 doz. less 5 per cent. c.i.f.

Collector of Customs, Calcutta.*Letter No. 648, dated the 23rd December, 1931.*

I have the honour to refer to your letter No. 690, dated the 19th November, 1931.

2. Plate and sheet glass are not separately recorded, but a study of three months figures suggests that the proportions between plate and sheet are about 2 to 3 by value.

3. A statement of the recent invoice prices of (a) sheet glass, (b) plate glass, (c) lantern globes and (d) bangles is enclosed herewith as desired.

Enclosure.

A.—SHEET GLASS (BELGIUM).

Plain sheet glass, Rs. per 100 sq. ft. c.i.f.

	6" x 4"	15" x 11"	36" x 24"	72" x 20"
	7" x 5"	18" x 12"	50" x 36"	72" x 36"
	Rs. A.	Rs. A.	Rs. A.	Rs. A.
21 ozs.	...	...	16 12	20 0
16 ozs.	6 4	10 0	16 0	...
10/12 ozs.	5 5	6 7	...	...

Coloured sheet glass.

1/8" . . . 10" x 8" up to 24" x 20": Rs. 17-9 per 50 sq. ft.

B.—PLATE GLASS (UNITED KINGDOM).

Polished plate glass, Rs. per 100 sq. ft.

	60" x 36"	72" x 48"	84" x 42" or 48"	84" x 60"
	Rs. A.	Rs. A.	Rs. A.	Rs. A.
¼"	0 12	1 0	1 2	1 3
⅜"	0 11	0 13	0 13	1 1
½"	0 9	0 11	0 11	0 14

B.—PLATE GLASS (UNITED KINGDOM)—*contd.*

	<i>Rough cast plate.</i>			
	30" x 24"	42" x 32"	48" x 24"	48" x 36"
	Rs. A.	Rs. A.	Rs. A.	Rs. A.
1"	1 2	1 8	1 8	1 8
$\frac{1}{2}$ " ,	0 14	1 2	1 2	1 2
$\frac{3}{4}$ "	0 10	0 11	0 11	0 11
$\frac{1}{4}$ "	0 8	0 9	0 9	0 9

C.—LANTERNS GLOBES (*c.i.f. Calcutta*).

United States of America, Dietz, Rs. 3-12-9 per doz.

Japan, Rs. 18 per 12 doz.

Japan, other kinds, Rs. 17 per 12 doz.

Germany, Rs. 1-6-3 per doz.

D.—GLASS BANGLES.

China.—No. importation.

Japan.—

- (1) *Reshmi or lustre, all colour*—
 - (a) *Fancy (per dozen pair c.i.f.)*—
 - (i) Embossed lustre, G.B., "Magatama brand", 1st quality, $1\frac{3}{8}$ " to $2\frac{1}{4}$ " at As. 2-2 $\frac{1}{2}$.
 - (ii) Twisted lustre, G.B., "Shake hand brand", $1\frac{3}{8}$ " to $2\frac{1}{4}$ " at As. 1-9.
 - (iii) Lustre six-sided, "Pigeon brand", 1st quality, $1\frac{1}{2}$ " to $2\frac{1}{4}$ " at As. 1-2.
 - (iv) Twisted lustre, "Castle brand", 1st quality, at As. 3.
 - (v) Rainbow colour twisted bangle, $1\frac{3}{8}$ " to $2\frac{1}{4}$ " at As. 2-10.
 - (b) *Other sorts (per dozen pair c.i.f.)*—
 - (i) Japanese silky glass bangle, $1\frac{1}{4}$ " to $2\frac{1}{4}$ " at 11 $\frac{1}{2}$ pies.
 - (ii) Japanese silky glass bangle, $1\frac{3}{8}$ " to $1\frac{3}{4}$ " at As. 1- $\frac{1}{2}$.
 - (iii) Silky glass bangles, $1\frac{3}{8}$ " to $2\frac{1}{4}$ " at 9 $\frac{1}{2}$ pies.
 - (iv) Silky glass bangles, "Syndicate label", 1st quality, $1\frac{1}{4}$ " to $2\frac{1}{4}$ " at 11 pies.
 - (v) Lustre round, "Pigeon brand", 1st quality, $1\frac{1}{4}$ " to $2\frac{1}{4}$ " at 11 $\frac{1}{2}$ pies.
- (2) *Hollow or tube (per dozen pair c.i.f.)*—
 - (i) New gold hollow tube, G.B., "Dance brand", 1st quality, $1\frac{1}{4}$ " to $2\frac{1}{4}$ " at As. 1-7 $\frac{1}{2}$.
 - (ii) Mixed colour twisted tube, G.B., "Mina Brand" at As. 2-7.
 - (iii) Fancy rainbow twisted tube, G.B., "Castle brand", 1st quality, $1\frac{1}{4}$ " to $2\frac{1}{4}$ " at As. 2-8 $\frac{1}{2}$.
 - (iv) Hollow tube, G.B., "Parrot brand", 1st quality, $1\frac{1}{4}$ " to $2\frac{1}{4}$ " at As. 1-4 $\frac{3}{4}$.
- (3) *Sonerikada*—
 - (a) *Containing gold in their composition.*—No importation.
 - (b) *Other sorts*—
 - (i) Kanpai brand.
 - (ii) Gold gilt bangle.

D.—GLASS BANGLES—contd.

Czechoslovakia (per dozen pair c.i.f.)—

- (i) Rainbow Email, G.B., 1½" to 2¼" at Rs. 1-5-6.
(ii) Zigzag, G.B., 1½" to 2¼" at As. 11-4.
(iii) Fancy twisted, G.B., 1½" to 2¼" at As. 5-5.
(iv) Rainbow, G.B., 1½" to 2¼" at Rs. 1-5.
(v) Coral, G.B., 1½" to 2¼" at Rs. 1-2.
(vi) Fancy rainbow, G.B., 1½" to 2¼" at Rs. 1-6-4.
(vii) Fancy zigzag, 1½" to 2¼" at As. 9-6.
(viii) Slma Darbar, G.B., 1½", Rs. 1-6-4, 1½", Rs. 1-6-9, 2", Rs. 1-7-3, 2½", Rs. 1-7-10.
(ix) Pressed granat, 1½", As. 2-4, 1½", As. 2-6, 1½", As. 2-6½, 1½", As. 2-9, 1½", As. 2-9½, 2", As. 2-10, 2½", As. 3, 2½", As. 3.
(x) Pasa, 3½" m/m., Granat, amber, As. 3-8.
(xi) Pasa, 3½" m/m., other colours, As. 3-1.
(xii) Hiranmanik, 3½" m/m., As. 6.
(xiii) K. Flower, 4" (pressed granat), As. 11-9 to As. 11-10.
(xiv) K. Flower, 4" (enamelled), Rs. 1-10.

Collector of Customs, Bombay.

(1) Letter dated the 15th December, 1931.

PLATE AND SHEET GLASS, LANTERN GLOBES AND GLASS BANGLES—STATISTICS—
INVOICE PRICES.

Your letter No. 690, dated the 19th November, 1931.

I have the honour to refer to your letter cited above and to state that it is not possible to obtain separate figures regarding imports of plate and sheet glass since the articles are not separately specified for statistical purposes. Figures showing imports of "plate and sheet glass" during the last three official years 1928-29 to 1930-31 are given below:—

Year.	Measurement.	Weight,	Value.
	Sq. ft.	Cwt.	Rs.
1928-29	6,908,903	182,348	10,26,610
1929-30	7,868,125	102,469	11,95,832
1930-31	5,735,828	74,697	8,05,345

As regards recent invoice prices of (a) sheet glass, (b) plate glass, (c) lantern globes and (d) bangles called for in sub-paragraph 2 of paragraph 1 of your letter, I attach herewith 2 notes from the Appraising Department giving the required information.

Enclosure.

Following are the c.i.f. prices of sheet glass, plate glass and lantern globes:—

	Per case of 100 sq. ft. c.i.f.	
	s.	d.
(i) ½" up to and including 18" x 24"	13	6
Over 18" x 24"	18	0
(ii) ¾", 8" x 10" to 40" x 60"	40	6
(iii) 1", 7" x 5" to 30" x 30"	32	1
Over 30" x 30" to 48" x 72"	48	0
Over 48" x 72" to 72" x 108"	98	9

The prices given above are for sheet glass from Belgium and Czechoslovakia. Nos. (i) and (iii) above are most predominant. No. (ii) is meant for use in Railways.

The c.i.f. cost per case of 100 sq. ft. of sheet glass from Japan is Rs. 9-8 for all sizes of $\frac{1}{8}$ " thickness only.

	Per case of 100 sq. ft.	
	s.	d.
16 ozs., all sizes	7	2
24 ozs., 26" x 26" to 36" x 42"	14	6
24 ozs., 25" x 38" to 40" x 60"	16	0

Plate Glass—Belgium.

(I) As supplied by Union Commercial des Glaceries, Belges, Brussels.

The c.i.f. cost per square foot of silvered $\frac{1}{8}$ " plate glass with 1" bevelling varies according to sizes, from 8d. to 17-9d. less 2½ per cent. and 1 per cent. plus extra for silvering without paper at 3-4d. per foot less 20 per cent. and bevelling at 1-5d. less 20 per cent. per foot. The average c.i.f. cost per square foot, however, works out to 17-13d.

Cut sizes silvered and varnished red back, bevelled—

Sizes—	Per sq. ft.
	d.
$\frac{1}{8}$ " to 1"	6½
1" to 2"	8
2" to 3"	11½
3" to 5"	14½
5" to 7"	16½
7" to 10"	17½

Plus silvering without paper at 2-7d. per square foot and bevelling 1" at 1-3d. per square foot.

The average c.i.f. cost, including silvering, bevelling, packing, etc., works out to 19-17d. per square foot.

Plate Glass.

(II) As supplied by Messrs. Pilkington Bros., Ltd., England.

(a) Silvered, $\frac{1}{8}$ "—The c.i.f. cost ranges from 11-65d. to 1s. 10d. per sq. ft.

(b) Silvered, $\frac{1}{8}$ " and bevelled—The c.i.f. cost ranges from 1s. 3-17½d. to 1s. 5-17½d. per sq. ft.

(c) Polished plate—From 6-17½d. to 14-17½d. c.i.f. per sq. ft.

(d) Cut sizes silvered and bevelled—

Size—	Per sq. ft. c.i.f.
	d.
$\frac{1}{8}$ "	9½
1"	12½
2"	13½
3"	18-17½
5"	21½
7"	23½
10"	25

Lantern Globes.

Feurhand Hurricane lantern globes, No. 455—clear—by Hermann Nier, Germany at 2s. ($\frac{1}{2}d.$ per dozen less 5 per cent. Rebate; c.i.f. (or 1s. 11 $\frac{1}{2}d.$ nett). (These globes are the most popular globes and are used for other lanterns of junior type such as Dietz, No. 252, No. 270, etc.)

American.

	Per dozen c.i.f.
Dietz, Junior	\$0.95
Fetzall	\$1.24
D'Lite	\$1.24

The following are the recent c.i.f. invoice prices of glass bangles [item (d), paragraph 2 of letter No. 690, dated the 19th November, 1931, from the Secretary, Tariff Board, Bombay]:—

A.—GLASS BANGLES IMPORTED MAINLY FROM CZECHOSLOVAKIA AND AUSTRIA.

	Per dozen pairs.
	s. d.
<i>Passa bangles—</i>	
Lall glass bangles, 7236, 3 $\frac{1}{2}$ -4 m.m.	0 4
Colour glass bangles, 7236, 3 $\frac{1}{2}$ -4 m.m.	0 4
Common glass bangles	0 2 $\frac{1}{2}$
Lal granate, 2761, 3 $\frac{1}{2}$ -4 m.m.	0 3 $\frac{1}{2}$
<i>Colour glass bangles—</i>	
Granate	0 3 $\frac{1}{2}$
Amber	} for small sizes and 4 $\frac{3}{8}d.$ for big sizes.
Lavender	
Anna yellow	
Other colours . . . . .		0 3$\frac{1}{2}$
	for small sizes and 3 $\frac{3}{8}d.$ for big sizes.
Glass bangles, 2761, 3 $\frac{1}{2}$ -4 m.m.	0 2 $\frac{1}{2}$
Glass bangles, No. 41	0 4.85
Full bangles, No. 51, 2764	0 5 $\frac{1}{2}$
<i>Hiramank glass bangles—</i>	
2762	0 5 $\frac{1}{2}$
Tortoise	0 6 $\frac{1}{2}$
Doriwali	0 7
Net lined, No. 12010, 3 to 3 $\frac{1}{2}$ m.m.	0 6 $\frac{1}{2}$
<i>New—</i>	
(a) No. 2430	0 7 $\frac{1}{2}$
(b) No. 8292	0 7 $\frac{1}{2}$
<i>Vilas Mohini bangles—</i>	
(a) No. 2814	0 6 $\frac{1}{2}$
(b) Tortoise colour, 2814	0 7 $\frac{1}{2}$
(c) Tortoise colour, 9642	0 7 $\frac{1}{2}$
<i>Vilas Mohini glass bangles—</i>	
Tortoise, 2708	0 6 $\frac{1}{2}$
Tortoise, 11909	0 7.12
All colours	0 5 $\frac{1}{2}$
Twisted fancy, No. 10554	0 6 $\frac{1}{2}$
Jaliwali, 10554	0 6 $\frac{1}{2}$
GLASS	2 G

	Per dozen pairs.	
	s.	d.
<i>Glass bangles, other sorts, fancy—</i>		
White rope lined glass bangles	0	7½
Crystal and coloured glass bangles, 8663	0	6
Fancy passa, assorted	0	6
Fancy bangles—		
No. 8683	0	6½
No. 2430	0	5½
Ser No. 518	0	6
No. 8684	0	7
No. 10809	0	7
No. 8661	0	6
Twisted, No. 10600	0	6½
Twisted, No. 10613	0	6½
Jaliwali	0	8½
Machine Full bangles, No. 60, 2770	0	6
Machine polish bangles—		
(a) No. 21, 2765	0	7½
(b) Tortoise, fancy	0	8
Machine cut glass bangles—		
(a) No. 24	0	5
(b) No. 24, 2767	0	7½
Rainbow glass bangles—		
(a) 2½ m. (lines)	2	0
(b) 3½ m. (lines)	2	5
Coral glass bangles	2	2½
E'Mail K Ful, granate, glass bangles, 4000, 3½ lines	1	7

The prices given above are subject to 6 per cent. discount only. Unless specified, the values are to be taken as being uniform for all the sizes, big as well as small.

The values for the following bangles vary with the sizes:—

I.—*Chand Tara bangles—Jado Chand Tara, 563, 3½ lines.*

Size	1½"	2"	2½"	2¾"
	s. d.	s. d.	s. d.	s. d.
Colour, granate	4 0	4 1	4 2	4 3
Colour, dark green	3 4	3 4	3 5	3 5½

The above granates and the greens are subject to 47 per cent. and 53 per cent. discounts respectively, with a further additional discount of 6 per cent. which is common in both the cases.

II.—*Chand Tara Barik, 2½ lines (per dozen pairs).*

Sizes	1½"	1"	1¼"	1½"	1¾"	2"	2¼"	2½"
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Granate	3 7½	3 8	3 8	3 9	3 10	3 11	4 0	4 1
Green	2 11	3 0	3 0½	3 1	3 2	3 3	3 4	3 5

The above prices in this class of bangles are subject to 61 per cent. and 65 per cent. discounts respectively, and also to a further discount of 6 per cent. which is common to both.

(NOTE.—In recent quotations from the manufacturers the discounts in cases I and II have been reduced to 31 per cent. and 36 per cent. in case I, and to 48 per cent. and 53½ per cent. in case II, from 47 per cent. and 53 per cent., and 61 per cent. and 65 per cent. respectively. The prices remain the same.)

III.—Common pressed glass bangles (per dozen pairs).

A.—2 line bangles.									
Size . . .	1¼"	1½"	1"	1¾"	1½"	1¾"	2"	2½"	2¼"
	d.	d.	d.	d.	d.	d.	d.	d.	d.
Granate . . .	3	3½	3½	3½	3½	3½	4	4½	0
Amber . . .	2½	2½	2½	2½	2½	3	3½	3½	3½

B.—3 line bangles.									
Size . . .	1¼"	1½"	1"	1¾"	1½"	1¾"	2"	2½"	2¼"
	d.	d.	d.	d.	d.	d.	d.	d.	d.
Granate . . .	4	4½	4½	4½	5	5½	5½	5½	0
Amber . . .	3½	3½	3½	3½	3½	4½	4½	4½	4½

These values are in pence per dozen pairs and are subject to 19 per cent. and 6 per cent. discounts only.

B.—GLASS BANGLES IMPORTED FROM JAPAN.

The c.i.f. values of the principal varieties are as under, and are inclusive of less 1 per cent. discount, commission and other sundry charges including freight, etc.

	Per dozen pairs.
Reshmi glass bangles	Sens. 2.9
Embossed lustre glass bangles	7.8
Lustre, twisted glass bangles	6.0
Hexagonal lustre glass bangles	3.44
Rainbow tube or "Fento" bangles	9.5
Thin real gold glass bangles	16.6
Golbala glass bangles or sonerikada (not containing gold in their composition)	9.0
Imitation gold tube glass bangles	7.0

C.—GLASS BANGLES IMPORTED FROM CHINA.

Rajavarakh bangles are the only bangles imported from China. The values given below are in Chinese (Canton) dollars:—

- (a) Jadi, \$8 per 100 pairs c.i.f.
- (b) Fatli, \$10 to \$11 per 100 pairs c.i.f.

(2) Letter R. S. R. No. 7375 of 1931, dated the 2nd February, 1932, from the Collector of Customs, Bombay.

GLASS TILES—IMPORTS—STATISTICS REGARDING.

Your letter No. 33, dated the 15th January, 1932.

In reply to your letter cited above, I have the honour to state that glass tiles are not separately specified for statistical purposes, but are included under the head "Building and Engineering materials, etc.—Tiles". Figures of imports thereof are not therefore available. The invoice price of glass tiles is 1s. 10½d. per piece c.i.f. packed in cases, each case containing 24 pieces.

Collector of Customs, Madras.

Letter No. R. 2573/31-St., dated the 23rd December, 1931.

I have the honour to furnish total imports of sheet and plate glass into the Madras Presidency.

2. The recent invoice prices of the items mentioned by you will be found in the statement enclosed herewith.

3. The delay in sending the particulars is much regretted.

Enclosure.

STATEMENT SHOWING THE TOTAL IMPORTS OF SHEET AND PLATE GLASS INTO THE MADRAS PRESIDENCY, 1928-29.

Chief Port (Madras Port only).

	Sq. ft.	Cwt.	Rs.
Sheets	34,48,016	32,014	2,91,132
Plates	1,73,348	3,245	1,13,133

Subordinate ports of Madras.

(For 6 months October 1928 to March 1929. Bills of Entry relating to previous months were destroyed.)

	Sq. ft.	Cwt.	Rs.
Sheets	3,65,656	3,172	30,100
Plates	7,802	173	4,434

Madras Presidency

1929-30.

	Sq. ft.	Cwt.	Rs.
Sheets	43,86,787	41,156	4,04,747
Plates	1,45,605	3,540	1,33,564

1930-31.

	Sq. ft.	Cwt.	Rs.
Sheets	34,89,708	35,514	2,97,215
Plates	91,951	2,087	77,794
Thin sheets and plates	510	51	331

The principal suppliers in the order of importance were Belgium, the United Kingdom, Germany and Netherlands.

The current invoice prices of sheet glass are as follow:—
Belgian sheet glass, 16 oz. thick—

	Lowest.	Highest.
	s. d.	s. d.
100 sq. ft. per case—		
0/25 united inches	8 7	10 0
26/40 united inches	10 4½	12 6
41/50 united inches	11 3	13 6
Cases of 50 sq. ft., 16 oz. thick—		
41/50 united inches	6 7	...
51/60 united inches	7 3	...

Glass sheets, 26 oz. thick—Average price 20s. per case of 100 sq. ft.

Glass sheets, 28 oz.—Average price 28s. 6d. per case of 100 sq. ft.

Glass sheets, 32 oz.—Average price 20s. 6d. per case of 50 sq. ft.

Glass sheets, ¾" thick, case of 200 sq. ft.—

10" x 8" to 18" x 14"—5½d. per sq. ft.

24" x 18"—7d. per sq. ft.

Plate glass, mirrors, bevelled, ¼" thick—

16" x 12" to 24" x 15"—1s. 5½d. per sq. ft.

24" x 18" to 36" x 18"—1s. 9d. per sq. ft.

36" x 24" to 48" x 18"—1s. 9d. to 2s. per sq. ft.

Figured glass—

White, ½" thick sheets—2¼d. per sq. ft. to 2¼d. + 15 per cent.

Coloured—3¼d. for 20 cases and above to 3¼d. + 15 per cent. 4d. for less than 20 cases to 4d. + 15 per cent.

Packing 250 sq. ft.—From Belgium and Germany.

Glass sheets and plate glass (mirrored), re-exported by Messrs. Pilkington Bros. are imported only in very small quantities. Hence, the prices are not given.

Glass bangles.—The following are the kinds of glass bangles imported in large quantities:—

Machine polish, Passaful, Passalal, Doramali Hirananeek, plain Hirananeek, Double zalli Hirananeek, pressed granate 2½, 3½ and amber 2½.

The current prices for December and January are as follow:—

Machine polish—8d. to 9d. less 5 per cent.

Passaful—6½d. less 5 per cent.

Passalal—4½d. less 5 per cent.

Doramali Hirananeek—7½d. less 5 per cent., single zalli—7½d. to 8d. less 5 per cent.

Double zalli Hirananeek—9d. less 5 per cent. and 8¾d. less 5 per cent.

Plain zalli Hirananeek—7d. less 5 per cent.

Pressed and massive granate, Granate-syndicate rates less 10 per cent., Amber-syndicate rates less 10 per cent. to 11 per cent.

	2¼"	2½"	2"	1½"	1¼"	1½"	1¼"	1½"	1¼"
	d.	d.	d.	d.	d.	d.	d.	d.	d.
Massive granate, 3½"	6	5½	5½	5½	5	4½	4½	4½	4
Massive granate, 2½"	4½	4	3½	3½	3½	3½	3½	3½	3
Amber granate, 2½"	3½	3½	3½	3	3½	2½	2½	2½	2½

Lantern Globes—

Feurhand—(per dozen less 3 per cent.)—

No. 155, 2s. 1d. No. 440, 2s. 5½d. No. 470, 2s.

Dietz—(per dozen less 2 per cent.)—

Junior, \$.98. Little Wizard, \$.98. D'Lite Globes, \$ 1-29.

East Indian Railway.

- (1) *Letter No. 691, dated the 19th November, 1931. From Secretary, Tariff Board, to the Deputy Chief Commercial Manager, Rates and Development, East Indian Railway, Calcutta.*

I have the honour to state that the Board is at present engaged upon an enquiry into the Glass Industry in India and I am to ask if you will be good enough to supply certain information.

The Board would like to have a statement showing the railway freight on glass from—

- (a) Allahabad,
- (b) Bahjoi,
- (c) Calcutta,

to three or four up-country markets served by the East Indian Railway. I should be glad if you would select the markets to which the greatest quantity of glass is normally transported from the places mentioned. The Board at the moment is chiefly concerned with the freight rates on sheet glass but if separate figures can be supplied for lamp globes, bottles and bangles it would be of great value.

I am also to ask whether the freight rate is charged on nett weight or on gross weight, *i.e.*, including the weight of packing materials.

The Board would be grateful for a reply as early as possible and not later than December 20th. It should be sent together with six spare copies to the Secretary, Indian Tariff Board, 1, Council House Street, Calcutta.

- (2) *Letter No. T. B. 3/31/R. D.—B. C., dated the 18th December, 1931, from the East Indian Railway.*

The Board have asked for information regarding freights on the following articles:—

- (1) Sheet glass.
- (2) Lamp globes.
- (3) Bottles.
- (4) Bangles.

Items (1) and (2) come under the general classification head "Glassware Division D."—4th class at Railway risk. The basis of the 4th class rate is 62 pies per maund per mile.

Item (3) is classified 4th class at Railway risk and 2nd class at owner's risk. The basis of 2nd class rates is 42 pies per maund per mile. Glass bangles, item (4), are classified 6th class at Railway risk, the basis of which is 83 pies per maund per mile.

In addition to charges calculated on the mileage basis given above, the usual terminal charges are made.

Sheet glass is at present only manufactured at Bahjoi. Chimneys and globes are manufactured at Naini (near Allahabad), Firozabad, Bahjoi and a few other centres. Bottles are manufactured chiefly at Naini and Bahjoi. The main centre of bangle manufacture is Firozabad.

Concessions to Indigenous Manufactures.—The following general concessions are allowed to the various Glass Factories located on this Railway:—

Glassware Division D includes Sheet Glass, Chimneys and Globes. Rates equal to 1st class at owner's risk when manufactured and consigned by the Glassworks at Naini, Firozabad, Shikohabad, Farukhabad, Harangau, Balawali, Bahjoi, Hathras.

The basis of 1st class rates is 38 pies per maund per mile *plus* terminals.

Bottles Rates equal to 1st class O. R., when manufactured and consigned by the Glassworks at Naini and Bahjoi.

Bangles Rates equal to 2nd class O. R., when manufactured and consigned from Firozabad, Jalesar Road, Shikohabad, Samhon.

In addition to these general concessions, special station to station rates are quoted in certain cases.

Concessions to imported goods.—No rates lower than the ordinary classified rates are in force except in the case of Glass Bangles, for which rates equal to 2nd class at O. R. are quoted from Howrah for stations distant 500 miles and above. This is a competitive adjustment to meet the quotation by the Great Indian Peninsula Railway of rates equal to 2nd class from Bombay.

For purposes of a comparison of relative rates, I have selected the following important centres as receiving points:—

Patna, Gaya, Benares, Allahabad, Lucknow, Cawnpore, Agra, Bareilly, Aligarh, Delhi.

The following statements are enclosed showing the relative rates to these centres:—

Statement "A".—Relative rates for sheet glass from Bahjoi and Howrah. (It may be noted here that to encourage Bahjoi Sheet Glass in Calcutta a special rate of As. 12 per maund at owner's risk, in minimum wagon loads of 300 maunds, loading and unloading by owners, is quoted from Bahjoi to Howrah. Despatchers are allowed to club small consignments up to a maximum number of five to make up the minimum load.)

Statement "B".—Relative rates for chimneys and globes from Howrah, Naini, Firozabad and Bahjoi.

Statement "C".—Relative rates for bottles from Howrah, Naini and Bahjoi.

Statement "D".—Relative rates for bangles from Howrah and Firozabad.

Freight is always charged on the gross weight of consignments.

In connection with the question of rates for bangles, I would suggest the Board secure the complete proceedings in Case No. XVIII investigated by the Railway Rates Advisory Committee—Messrs. Bhani Lal Glass Works, Firozabad, vs. East Indian, Great Indian Peninsula, Bombay, Baroda and Central India, North Western and other Railways. These proceedings contain a lot of information about the Glass Bangle Industry at Firozabad.

If there is any further information I can give, I shall be only too pleased to do so.

Five additional copies of this reply and annexures are enclosed as desired.

STATEMENT "A".

Rate per maund for Sheet Glass.

Stations to	From Howrah.		From Bahjoi.	
	Miles.	Rate.	Miles.	Rate.
		Rs. A. P.		Rs. A. P.
Gaya	292	0 15 9	524	1 1 1
Patna	338	1 2 2	529	1 1 3
Benares	429	1 6 10	387	0 12 9
Allahabad	512	1 11 1	324	0 10 9
Lucknow	616	2 0 6	200	0 6 10
Cawnpore	631	2 1 3	231	0 7 10
Bareilly	762	2 8 0	54	0 2 6
Agra	788	2 8 9	113	0 4 1
Aligarh	823	2 9 3	51	0 2 4
Delhi	902	2 9 3	130	0 4 7

NOTES.—(1) *Howrah rates* are all 4th class. The rates to Agra, Aligarh and Delhi are "adjusted" class rates in adjustment with rates from Bombay and Karachi.

(2) *Bahjoi rates* are rates equal to 1st class at O. R. In the case of Gaya, Patna and Benares, the special rate of As. 12 per maund O. R., W/300, L., from Bahjoi to Howrah is also applicable differentially.

STATEMENT "B".

Rates per maund for Chimneys and Globes.

Stations to	From Howrah.		From Naini.		From Firozabad.		From Bahjoi.	
	Miles.	Rate.	Miles.	Rate.	Miles.	Rate.	Miles.	Rate.
		Rs. A. P.		A. P.		A. P.		Rs. A. P.
Gaya	292	0 15 9	217	7 4	474	15 6	524	1 1 1
Patna	338	1 2 2	222	7 6	479	15 8	529	1 1 3
Benares	429	1 6 10	89	3 4	336	11 2	387	0 12 9
Allahabad	512	1 11 1	10	1 1	253	8 6	324	0 10 9
Lucknow	616	2 0 6	130	4 7	180	6 2	200	0 6 10
Cawnpore	631	2 1 3	125	4 6	134	4 9	231	0 7 10
Bareilly	762	2 8 0	276	9 3	163	5 8	54	0 2 6
Agra	788	2 8 9	281	9 5	23	1 6	113	0 4 1
Aligarh	823	2 9 3	316	10 6	59	2 7	51	0 2 4
Delhi	902	2 9 3	395	13 0	137	4 10	130	0 4 7

NOTES.—(1) Rates from Howrah are 4th class rates.

(2) Rates from other points are equal to 1st class at O. R.

STATEMENT " C ".

Stations to	Rates per maund for Bottles					
	From Howrah.		From Naini.		From Bahjoi.	
	Miles.	Rate.	Miles.	Rate.	Miles.	Rate.
		Rs. A. P.		A. P.		Rs. A. P.
Gaya	292	0 10 11	217	7 4	524	1 1 1
Patna	338	0 12 6	222	7 6	529	1 1 3
Benares	429	0 15 8	89	3 4	387	0 12 9
Allahabad	512	1 2 7	10	1 1	324	0 40 9
Lucknow	616	1 6 3	130	4 7	200	0 6 10
Cawnpore	631	1 6 9	125	4 6	231	0 7 10
Bareilly	762	1 11 4	276	9 3	54	0 2 6
Agra	788	1 11 9	281	9 5	113	0 4 1
Aligarh	823	1 12 4	316	10 6	51	0 2 4
Delhi	902	1 12 4	395	13 0	130	0 4 7

NOTES.—(1) Rates from Howrah are all 2nd class at O. R.

(2) Rates from Naini and Bahjoi are equal to 1st class at O. R.

(3) There is a special rate of As. 11-1 per maund, O. R., W./200, L., from Naini to Howrah.

STATEMENT " D ".

Stations to	Rates per maund for Glass Bangles.			
	From Howrah.		From Firozabad.	
	Miles.	Rate.	Miles.	Rate.
		Rs. A. P.		Rs. A. P.
Gaya	292	1 2 2	474	1 1 1
Patna	338	1 2 2	479	1 1 3
Benares	429	1 2 2	336	0 12 3
Allahabad	512	1 2 7	253	0 9 4
Lucknow	616	1 6 3	180	0 6 10
Cawnpore	631	1 6 9	134	0 5 2
Bareilly	762	1 11 4	163	0 6 2
Agra	788	1 11 9	23	0 1 7
Aligarh	823	1 12 4	59	0 2 10
Delhi	902	1 12 4	137	0 5 4

NOTES.—(1) Rates from Howrah are equal to 2nd class at O. R. In the case of Gaya, Patna and Benares, the 2nd class rate for 500 miles is applied differentially as it works out cheaper than the 6th class rates which are:—

	Per md.
	Rs. A. P.
Gaya	1 4 10
Patna	1 8 1
Benares	1 14 4

(2) Rates from Firozabad are equal to 2nd class O. R.

Director, Geological Survey of India, Calcutta.

- (1) *Letter No. 653, dated the 10th November, 1931, from the Secretary, Tariff Board, to the Director, Geological Survey of India, Calcutta.*

The Tariff Board is at present engaged upon an enquiry into the Glass Industry in India. The chief materials required by a glass manufacturer are sand, soda ash, lime, coal and fire resisting materials for furnaces and crucibles. It appears that at present soda ash and crucibles are mostly imported.

2. The Board would be grateful for your opinion as to the possibility of obtaining in India the materials now mostly imported and would also welcome a general statement regarding the existence of natural advantages for an extension of the glass industry in India. I am to say that the Board has seen "Notes on Glass Manufacture" by Mr. C. S. Fox (Bulletin No. 29, Indian Industries and Labour) and would be glad to know if there is any later information on the subject available with your Department.

3. I am to ask if you will be good enough to send a reply to this letter, together with 6 spare copies, as early as possible and not later than 10th December. It should be addressed to the Secretary, Tariff Board, 1, Council House Street, Calcutta.

- (2) *Letter No. 5770/517 (2), dated the 10th December, 1931, from the Director, Geological Survey of India.*

Your letter No. 653, dated the 10th of November, 1931, came duly to hand, but owing to my absence on tour and urgent problems connected with retrenchment, it has not yet been dealt with.

You ask for my opinion on the possibility of obtaining in India the materials now mostly imported and also for a statement regarding the existence of natural advantages for an extension of the glass industry in India. These questions appear to me to be already answered in an article on the "Raw Materials for Glass making in India" by Dr. C. S. Fox of this Department, published in the Indian Industries Trade and Transport Supplement to Capital, issued in December 1930. You will find Dr. Fox's article on pp. 56-59 of this Supplement, and from this article you will find that India can provide many of the materials required for manufacture of glass and there seems to be no reason why the glass industry should not be extended in India. I am sending off this reply to-day and trust that it will be in time to be useful.

Indian Coal Grading Board.

- (1) *Letter No. 696, dated the 19th November, 1931, from the Tariff Board.*

The Indian Tariff Board is at present engaged upon an enquiry into the Glass Industry in India. Since coal forms a very large item in the costs of glass manufacture I am to ask if you will be good enough to assist the Board by furnishing the following information if available.

The Board wishes to have with regard to the principal classes of Bengal coal an approximate analysis showing (i) fixed carbon content, (ii) volatiles, (iii) moisture, (iv) ash, with remarks as to nature of ash composition, (v) sulphur, (vi) coking properties, (vii) calorific value. The Board would also like to know with reference to each class the current prices (a) at pit's mouth, (b) f.o.r. Calcutta.

I should be grateful for a reply as early as possible and in any case not later than 12th December. The reply together with six spare copies may kindly be addressed to the Secretary, Indian Tariff Board, 1, Council House Street, Calcutta.

(2) *Letter No. 2607, dated the 10th December 1931, from the India: Coal Grading Board.*

With reference to your letter No. 696 of the 19th November, 1931, I enclose a statement showing the analyses, etc., of the principal classes of Bengal Coals as desired by your Board.

The analyses of ash of Desherghur and Poniati Coals will follow.

The present rates of the various classes of coals are as follows:—

	Per ton.
	Rs. A.
Desherghur	5 0
Poniati	4 12
1st Class Jharia	4 4
1st Class Ranigunj	3 10
Selected Jharia	4 12

But cargoes of the two former coals have recently been sold in Bombay and Hongkong which give the Collieries an f.o.r. rate of about Rs. 3-8 only.

Enclosure.

Coal.	Ash.	Calori- fic Value.	Moi- sture.	Vola- tiles.	Fixed Carbon.	ANALYSIS OF ASH.									Sul- phur.	Coke.
						Silica.	Iron Oxide.	Alu- mina.	Tita- nium Oxide.	Lime.	Mag- nesia.	Alka- lis.	Sul- phuric and Anhy- dride.	Phos- phoric anhy- dride.		
Desherghur . .	10.80	7,361	1.48	30.60	58.60	..	..	..	..	..	..	..	..	..	0.45	Partly coking.
Ponlati . .	14.50	6,769	4.30	32.40	58.10	..	..	..	..	..	..	..	..	..	0.62	Do.
1st Class Jharla . .	13.04	7,364	1.85	20.11	66.85	60.05	8.68	26.93	1.20	0.40	0.62	0.60	0.92	0.10	0.74	Coking.
1st Class Ranigunj.	11.24	7,176	4.84	30.26	58.50	60.20	6.05	25.17	1.20	2.70	1.56	1.17	0.66	1.58	0.92	Non- coking.
Selected Jharla . .	12.10	7,462	1.23	24.56	63.34	49.75	5.93	35.47	1.30	2.10	1.88	3.25	0.35	0.20	0.73	Coking.

(3) *Letter No. 2630, dated the 11th December, 1931, from the Indian Coal Grading Board.*

In continuation of this office letter No. 2607, dated the 10th September, 1931, I enclose herewith a statement showing the analyses of ash of Desherghur and Poniati Coals.

Enclosure.

Analysis of Ash.

	<i>Desherghur Coal. Poniati Coal.</i>	
	<i>Per cent.</i>	<i>Per cent.</i>
Silica	46.40	46.40
Iron Oxide	6.68	13.32
Alumina	28.14	21.76
Titanium oxide	1.20	1.10
Lime	7.90	7.90
Magnesia	2.35	1.65
Alkalis	0.85	1.86
Sulphuric anhydride	2.95	2.34
Phosphoric anhydride	3.78	3.52

Upper India Chamber of Commerce, Cawnpore.

Letter dated the 9th November, 1931.

I am directed to refer to the Government of India Resolution No. 458-T. (2), dated the 20th October, intimating that representations from certain glass manufacturers for the extension of protection to the glass industry in India had been referred to the Tariff Board.

The interest of the members of this Chamber in the glass industry is that of consumers, and on their behalf my Committee desire strongly to protest against the protection of the Indian Industry any further than it is now protected by the revenue Tariff on imported glassware. This protection is already quite adequate in regard to the inferior qualities of glass which alone the Indian Industry has shown itself able to manufacture, and is already too high and unnecessary in regard to the superior qualities of glass which the Indian industry cannot manufacture.

While it is admitted that my Committee cannot speak with expert knowledge of the manufacture of glass it is still widely known that all attempts, carried out over a long series of years, on the part of the Indian industry to manufacture glass of good or even of satisfactory quality comparable to the products of other countries for ordinary every day purposes, have failed. It is known to my Committee for instance that enquiries have been made in all parts of India where glass is manufactured, for bottles and jars of Indian make of good quality and appearance for packing sweets, spirits, chemicals, drugs, medicines and other articles of human consumption, and that in no case could an article be obtained which could even remotely justify its purchase in quantity to replace the imported article.

In this case it was obviously to the advantage of the enquirers to obtain bottles of Indian manufacture, not merely because of price and the avoidance of heavy overseas freight charges on bulky articles such as bottles, but because

of the risks of damage in transport and at the sea ports, and the undesirability of locking up money in comparatively heavy stocks of imported bottles. The inability of the Indian industry to supply a suitable article has left the enquiries no option but to go abroad for their requirements.

My Committee also understand that all enquiries for sheet or crown glass of Indian manufacture for glazing purposes have failed simply because the Indian manufacturer has been unable to produce a window glass free of flaws, striations and other defects.

During the war a great impetus was given to Indian glass manufacturers by the failure of supplies of imported glass, and quantities of phials, etc., were turned out which had perforce to be accepted in the absence of other supplies, but these products were shameful evidence of the incapacity of the Indian manufacturer to replace the imported competing articles. Since then improvements have, it is understood, been effected but even to-day the Indian manufacturer can only supply a comparatively inferior article.

It is obvious that this condition of the industry is not due to any lack of enterprise, capital or desire to succeed, on the part of those engaged in the industry, and the conviction is forced on my Committee that it is because of natural disadvantages, in the matter of climate and of the availability of sufficiently pure raw material, that the Indian industry has failed even to come up to the level of inferior manufacturers abroad, such as in Japan. It is known that the climate is a very important factor in the tempering or annealing of glass and while artificial means may be employed in overcoming this disability such means obviously imply expense and additional cost. It is stated also that the proper quality of the metallic oxides, of the silica sand and the water necessary for the better qualities of both flint and crown glass are not obtainable in that natural juxtaposition to one another and to suitable cheap fuel which would permit of their cheap employment. Here again the natural disadvantages can only be overcome at extra cost for freight on the raw material and on fuel which becomes prohibitory in the case of a cheap product such as glass.

To my Committee therefore it appears that in claiming protection for the Glass Industry the applicants have not satisfied the first of the three conditions laid down by the Fiscal Commission, namely:—

- “(1) The industry must be one possessing natural advantages, such as an abundant supply of raw material, cheap power, a sufficient supply of labour, or a large home market. Such advantages will be of different relative importance in different industries, but they should all be weighed and their relative importance assessed. The successful industries of the world possess certain comparative advantages to which they owe their success. No industry which does not possess some comparative advantages will be able to compete with them on equal terms, and therefore the natural advantages possessed by an Indian industry should be analysed carefully, in order to ensure as far as possible that no industry is protected which will become a permanent burden on the community.”

Nor do my Committee think that the 3rd of the conditions laid down is likely to be satisfied, obviously because the first is not met.

My Committee feel very strongly that any protection afforded to the glass industry in India will certainly be a burden, and a permanent burden, on the community, for glass is so widely used that the consumers of glass comprise the whole community. To industrial consumers the burden will be most severe for it may be taken as axiomatic that it will not be possible to pass on the price of glass containers to the consumers of the contents which are already at a fine cut competitive margin.

In the case of superior glass for scientific purposes it is inconceivable that India will ever be able to compete with those countries which are able to specialise in such products, mainly because of the natural availability of the

special raw constituents and of the very highly skilled labour necessary. Why then should the consumer of this quality of glass be burdened with an increase in duty which cannot be of protective advantage to an industry confined to the lower grades of manufacture.

Even in less superior but still good qualities of glass, such as is needed for tableware, tumblers, etc., India has not hitherto been able to compete with foreign manufacturers and it is extremely unlikely that she will be able to replace those manufactures which consumers have been accustomed to expect. She may provide inferior substitutes which will be avoided, on their demerits, wherever possible, and it will be extremely unfair in this case that the Indian Industry should be protected by a high tariff to enable it to foist off these substitutes on the community.

In considering the question of the Glass Industry in India my Committee feel constrained to comment on one fact which is not without significance in the present enquiry. As far as they have information there is not a single glass manufacturing enterprise in India financed to any extent by European capital, nor within many years has European enterprise in India interested itself in the manufacture of glass in this country. It may be argued by some that this is a cogent reason why a purely Indian Industry should be protected in India. These advocates might also say that this is a definite reason why European criticism of the proposal to protect the industry should be discounted. But to my Committee the importance of this point lies in the fact that because of the insuperable natural disadvantages, rendering it impossible for the industry in India to compete with the recognised glass manufacturing countries of the world in the production of good or superior glassware, European enterprise and European capital have fought shy of this industry.

The manufacture of crude glass in India obtained very long before the advent of Europeans to the country. Indeed glass is mentioned in the Mahabharata, and window glass, of a sort, in the Ain-i-Akbari. Glass ornaments of a crude and often opaque glass have been made from early times and phials, glasses and bowls of glass were freely manufactured in early Moghul times. But the industry was then limited to meeting the demand for ornaments and for occasional, semi-luxurious purposes, and the quality of the output satisfied the demand since nothing better was available. It was not until the coming of European influences into India that the demand increased for utilitarian purposes, *e.g.*, for bottles. This demand was met to a certain extent but the products were of very dark and almost opaque glass, and nothing comparable to the present quality of white glass was attempted. It is more than probable that the demand was still insufficient to call for proper enterprise and this too may have deterred European enterprise and kept away European capital. In the late "70's" Government took an interest in improving the manufacture of glass by utilising available supplies of material in Northern India but it became evident that the material was not sufficiently pure for the manufacture of good colourless glass. And although since then many improvements have been effected it would appear that these natural disabilities persist and that India can not for this reason enter into competition with other countries for the manufacture of just those qualities of glassware which are now in widest demand, *i.e.*, for bottles and for glazing purposes and certainly cannot expect to manufacture the higher grades of glass necessary for superior tableware or for optical or scientific purposes.

In these circumstances if protection is to be given to the Indian Industry it must be in respect of only the cheapest grades of glass and as these grades of Indian manufacture are already, by reason of this existing revenue duty, underselling European products by about 30 per cent. and Japanese products by about 15 per cent. the necessity for any protective tariff disappears.

My Committee must therefore register their complete opposition to the request for protection.

Buyers and Shippers Chamber, Karachi.

Letter No. G. C.-32/274, dated the 1st December, 1931.

Subject:—TARIFFS PROTECTION TO GLASS INDUSTRY.

With reference to your No. 458-T. (2), dated the 20th October, 1931, I am directed to submit my Committee's views on the question of protection to be extended to the Glass Industry in India as under:—

1. There are 2 main ingredients of glass, viz., (i) silica sand and (ii) soda ash. Silica sand is available in most parts of the country in a very large quantity; but soda ash is at present manufactured in India, in a limited quantity, and it would therefore be imperative to extend protection to soda ash industry (be it under protection to the Chemical Industry or the Glass Industry).

This done, the Glass Industry would be satisfying all the three conditions laid down in the Report of the Indian Fiscal Commission, because:—

Firstly, it would then have abundant supply of raw materials both silica sand as well as soda ash. Fire-clay and other materials required for furnace are also in abundance. Labour is always cheap in a poor country like India, and there could not in a vast country as India is, arise any question as regards a large home market; and this fact can easily be verified from the great import figures of glassware because of the glass factories in India not being able to cope with the home requirements.

Secondly, it is also a fact that till now and till such time as protection is not extended thereto, the Glass Industry has not developed and will not develop so rapidly as is desirable in the interests of the country.

Thirdly, it can be said without fear of contradiction that this industry with abundant supply of silica sand available in most parts of the country and with full development of the Chemical Industry with particular reference to the Soda Ash Industry will after a limited protection period of say about 10 years be eventually able to face world competition without any protection.

Above all, it will be noted that glassware is imported into India chiefly from Austria, Germany and Japan. Thus, the question of any adverse effect on the inter Empire trade not being involved, the Glass Industry not only deserves the protection, but there also appears to be no reason for any hesitation in extending protection thereto.

2. (a) In the opinion of my Committee, it would, in order to give effective protection, be necessary to enhance import duty on both glassware and soda ash, and if necessary to subsidize these industries.

(b) It would be necessary to extend protection to this Industry for at least a period of 10 years.

In this connection, I am further directed to submit that for a rapid progress in this direction it would also be necessary to reduce the rates of railway freight and to afford additional railway facilities both for glassware manufactured in India and for coal.

It is therefore requested that the Government of India will be pleased to refer this matter to the Tariff Board at an early date with such further recommendations as are deemed fit.

Burma Chamber of Commerce.

Letter No. P. 588/476, dated the 7th December, 1931.

THE TARIFF BOARD'S INVESTIGATION INTO THE GLASS INDUSTRY.

I am directed to refer to your Department Resolution No. 458-T. (2), dated the 20th October, 1931, referring to the Tariff Board for examination,

representations from certain glass manufacturers requesting that protection may be extended to the glass industry in India.

2. I am to say that this Chamber protests very strongly against the imposition of a protective tariff. Burma has no glass industry at present to protect, and if any extra duty was imposed, it would have to be paid by the consumer, in most cases a poor man.

3. My Committee doubt very much if India for some considerable time to come will be able to supply her own requirements in the way of glass, much less those of Burma.

Punjab Chamber of Commerce, Delhi.

Letter No. 871/528/31, dated the 9th December, 1931.

PROTECTION TO THE INDIAN GLASS INDUSTRY.

We are directed to refer to Government of India, Department of Commerce Resolution No. 458-T. (2), dated the 20th October last, which refers to the Tariff Board for examination and report certain representations requesting that protection may be extended to the Glass Industry in India.

Apprehension has been felt in the Punjab by brewers and distillers who bottle their produce in imported bottles regarding the possible effect of any recommendation which the Board might, as a result of their examination of the question, find advisable to make. The Committee of the Chamber therefore desire to submit for the Board's consideration an aspect of this case as it affects these industries. According to the Punjab Excise Rules, and it is believed similar rules apply in other provinces, they have to use bottles of a standard pattern whereon their capacity as well as the words "Punjab Excise" are moulded and which are moreover accurate to the measure which they purport to contain. These bottles are at present being imported from abroad. The Committee feel that if any protection recommended by the Board should take the form of an enhancement in the Customs duty on imported glassware, bottles such as are used by these industries should be exempt from the operation of such increased duty until such time as they can be manufactured in India: otherwise the cost to the consumer of bottled spirit would be raised.

The Committee are informed that two members of this Chamber, The Amritsar Distillery Company, Limited, and Murree Brewery Company, Limited, have already addressed the Board in this connection but for the sake of ready reference we are instructed to attach copies thereof.

Copy of letter dated the 13th November, 1931, from the Managing Director, Amritsar Distillery Company, Limited, Amritsar, to the Secretary to the Government of India, Department of Commerce, New Delhi.

PROTECTION FOR THE INDIAN GLASS INDUSTRY.

We have received a copy of Resolution No. 458-T. (2), dated the 20th December, 1931, issued by you from the Punjab Chamber of Commerce.

We have carefully read the above resolution and while we have every sympathy with the Glass Manufacturers' desire to obtain protection we beg to suggest that before we could use Indian made bottles, no matter what their price might be, we would require some guarantee of quality, and we are of the opinion that it will be some time before Indian manufacturers would be able to supply us with bottles of the type we require.

According to the Punjab Excise Rules and these rules also apply in other provinces of India—in the United Provinces for instance—bottlers of Indian made spirits have to use bottles of a prescribed pattern having the words “Punjab Excise” and the capacity of same moulded on the bottles. The bottles required are in three sizes, i.e., 6 to the gallon, 12 to the gallon and 24 to the gallon and as the bottles contain liquor on which heavy excise duty is to be paid it is most important that they should accurately contain on an average the quality of liquor they are advertised to hold up to the prescribed rim mark on the neck of the bottle. We are large importers of such bottles and there are also other firms who are importing these bottles. When and until such bottles can be made in India any increase of Customs duty would merely have the effect of raising the cost of bottled spirit to the consumer; in other words it would act like an increase in the Excise duty payable on our spirit.

For this reason we would request that if any protection is given to the Indian Glass Manufacturers on any glassware at any rate the type of bottles that we use should be excluded.

Copy of letter No. 1/752, dated the 18th November, 1931, from the Murree Brewery Company, Rawalpindi, to the Secretary to the Government of India, Department of Commerce, New Delhi.

PROTECTION FOR THE INDIAN GLASS INDUSTRY.

With reference to Resolution No. 458-T. (2), dated the 20th October, 1931, we have the honour to state that while we have every sympathy with the Glass Manufacturers' desire to obtain protection, we would like to make the following remarks:—

According to the Punjab Excise we have to use bottles of a standard pattern having the words “Punjab Excise” and the capacity of the bottles moulded on to the bottles. These standard bottles are of three sizes, and it is important that they should accurately contain on an average the quantity of liquor they are supposed to hold. We along with other distillers are large importers of these bottles, and until we could get a guarantee that the Indian manufacturers could produce such bottles satisfactorily we would be unable to purchase Indian made bottles, no matter what their price might be. At present the price of these standard bottles is big, and if protection was given to the Indian Glass Industry, which protection we would assume would take the form of a tariff on imports, it would mean an increase in the price of these bottles, thereby forcing us to increase our prices for bottled spirits.

For these reasons therefore, if any protection is given to the Glass Industry, we would request that the type of bottles indicated above should be excluded.

Northern India Chamber of Commerce, Lahore.

Letter No. L.155, dated the 10th December, 1931.

THE GLASS INDUSTRY—PROTECTION.

I am directed to refer to the Resolution issued under No. 458-T. (2), Government of India, Department of Commerce, dated the 20th October, 1931, in connection with the grant of protection to the Glass Industry in India.

This Chamber has examined this question in consultation with importers, consumers and manufacturers of glassware, and the opinion has been formed that—

- (1) bottles for use in bottling spirits under the Punjab Excise Rules,
- (2) soda water bottles, and

(3) high class screw top and other jars suitable for bottling jam and preserved fruit,

should be totally excluded from any protection which may be given to the Glass Industry in India, in the form of a protective tariff or in any other manner which will increase the price of imports of the above referred to items.

Under the Punjab Excise Rules, spirits produced in the Punjab must be put up in bottles of a standard pattern having the words " Punjab Excise " and the capacity of, the bottles moulded on to the bottles. These standard bottles are of three sizes and it is important that they should hold on an average the quantity of liquor they are marked as containing. Distillers are large importers of these bottles, as manufacturers in India are apparently unable to produce satisfactory bottles conforming to a definite capacity.

This Chamber is informed that soda water bottles are not produced in India, and until these bottles, of accurate capacity and sufficient strength, can be so manufactured, this Chamber urges that protection should not extend to soda water bottles.

So far as concerns high class screw top and other jars suitable for jams and preserved fruit, certain members of this Chamber interested in the industry state they are unable to obtain suitable glass jars, and until these items are available in India, the Chamber is of opinion that protection should be withheld in respect of such jars.

Calcutta Trades Association, Calcutta.

Letter No. 5-C. M. 7/1932, dated the 27th January, 1932.

Re PROTECTION TO THE INDIAN GLASS INDUSTRY.

In the light of information obtained, the Committee of this Association has further considered this matter. I am to represent that the Committee is strongly of opinion that in the case of this small and unimportant industry special treatment, penalizing consumers throughout the country should not be recommended. The Committee would furthermore point out that the existing duties, combined with heavy freight and insurance expenses already gives this industry a substantial advantage over foreign competitors. If in these conditions it cannot prosper and expand, there is, in the opinion of the Committee no hope of it becoming any great value to the country as a whole.

Indian Chamber of Commerce, Calcutta.

Letter No. C. 75/31, dated the 5th February, 1932.

I am directed by the Committee of the Indian Chamber of Commerce, Calcutta, to refer to the Resolution of the Government of India No. 458-T. (2), dated Simla, the 20th October, 1931, intimating that they have referred to the Tariff Board for examination of the question of the grant of protection to the Glass Industry in India and desiring that the views of the Chamber should be forwarded to the Tariff Board for their consideration. The Committee of the Indian Chamber of Commerce, Calcutta, have carefully considered the question of the Glass Industry in India and are satisfied that this industry is one which needs adequate protection from the State, satisfying as it does fully the condition laid down in the Report of the Indian Fiscal Commission for the grant of protection to any industry in India. The industry possesses natural advantages such as abundant supply of raw materials, cheap power, plentiful supply of labour and an extensive home market. With

these advantages the industry is only in need of protection for a temporary period in order to enable itself to withstand the foreign competition. In view of the detailed replies sent by Messrs. M. M. Mehta, Glass Manufacturers of Calcutta, and by Bengal Glass Works, Ltd.—two members of the Chamber, the Committee of the Chamber do not consider it necessary to send any elaborate replies to the Tariff Board. They wish to lay stress on the fact that the indigenous glass factories manufacture articles which are in daily consumption in every Indian household and the establishment of the industry on a firm footing would result in the retention in India of the large amount of money which is now being paid for imports from foreign countries. Several of these countries impose heavy protective duties to foster their own industries and prevent extraneous competition. A very large portion of the materials used in the manufacture of glass, is available in this country and we are not to depend on supplies from foreign countries. The small percentage of raw materials in the shape of chemical ingredients now imported from abroad will be gradually available inside the country, as the chemical industry develops. Labour is plentiful and the workmen, having already a primary knowledge and being accustomed to the manufacture of glass although in a crude form, have rapidly improved under expert supervision and have quickly become competent in their work. Besides, the industry seems to have been particularly attractive for Indians, who have started several small factories for the manufacture of glass, all over the country, undeferred by the failure of comparatively large concerns belonging to Europeans. Electric power and coal for fuel as well as gas are easily obtainable and no difficulty as regards Power or fuel is experienced by the factories now in existence. The manufacturers of glass bangles in India are able to turn out goods fully equal to those imported from abroad, particularly those imported from Japan, and the granting of protection would accelerate the progress which the indigenous factories are now slowly making. Although consumers recognize that the articles manufactured in India are fully equal to those imported from abroad they insist upon offering lower prices on the assumption that goods produced in India should be cheaper than those imported from abroad. Apart from this handicap manufacturers find no difficulty in disposing of the entire production as bangles are almost universally used by women in India and may be said to be an article of necessity to them. My Committee also wish to draw attention to the danger of foreign manufacturers establishing factories in India in order to evade any protective duties which may be imposed. This has occurred in the case of the Match Industry where the Swedish Trust has erected factories all over India and are gradually strangling the indigenous concerns and driving them out of existence, and is threatening the sugar industry. Timely steps should be taken to prevent a repetition of similar fate in the case of the Indian Glass Industry by introducing suitable legislation whereby foreign enterprise will be prevented from reaping the advantages consequent on the imposition of a high tariff duty for purposes of giving protection to the industry. My Committee would further suggest for the consideration of the Tariff Board that the Government of India should be asked to make an adequate annual grant from the Central Revenues for glass research. It is very essential that the glass factories should be advised by expert technologists about the introduction of modern and up-to-date methods of manufacture in their factories, in order to make their working economical and efficient. Adequate provision for technological training for a few young men every year should be made in some Universities suitably equipped for the purpose. Recent fluctuations in the world's exchanges have prominently brought before the public the question of the effects which such fluctuations may have on the cost of importation of foreign articles. Protective tariff duties imposed on foreign articles on the basis of a particular cost of their importation may be suddenly found inadequate for protection if the value of the Currency of the competing foreign countries depreciates in terms of Indian Currency. To provide against such contingency, the Tariff Board should recommend to the Government that they should invest themselves with powers to enhance tariff duties automatically to the extent required by the fluctuations in exchange with the various countries,

Messrs. Meyer Nissim, Bombay.

A.—WRITTEN.

(1) *Letter dated the 5th November, 1931.*

Re GLASS.

We understand that manufacturers of glass in India have approached Government for protection by way of enhanced duties on goods imported from foreign countries.

In this respect we beg to state that bottles, such as, Coods Patent, Crown-cork Minerals, Excise and similar at present produced in India are much inferior in quality and do not stand the necessary pressure. Moreover the quantity turned out is very insignificant and quite insufficient to meet the requirement of the trade. The imports of glass bottles and phials from foreign countries are as under:—

1928-29.	1929-30.	1930-31.
586,027	702,998	616,148 gross.

Under the circumstances we would request you to please exempt glass bottles from any increase in the present duties, as we do not consider that it would in any way assist the Indian industry, but would merely increase the cost to consumers.

We are inviting reports from the consumers and will submit same to you as and when received.

Meanwhile, we shall thank you to please note our protest and give it your considered attention.

(2) *Letter dated the 17th November, 1931.*

With further reference to our letter of 5th instant, and yours of 7th idem, we now beg to enclose herewith copies of reports received from some of our clients which please file for references. We shall thank you to please let us know if it is necessary for all our clients to send separate applications to the Board and answer the Board questions separately, or will our application only suffice, and you will send us question papers to be answered by all our clients or would ourselves alone, suffice?

Enclosure No. 1.

From Katrak & Co., High Class Aerated-water Manufacturers, Bombay, to Messrs. Meyer Nissim & Co., Bombay.

We have come to know that Indian glass bottle manufacturers have approached to the Tariff Board to enhance the duty on bottles manufactured in Foreign Countries and given them protection. We hereby request you to oppose strongly to this proposition to the Tariff Board to save us from further losses by paying increased duties on Coods Bottles. The following reasons will convince the Tariff Board not to put extra burden on the Sodawater Trade:—

- (1) *Quantity.*—The manufacturers of Indian Bottles (Coods) are not in a position to supply in large quantities required by Sodawater manufacturers even 50 gross at a time.
- (2) *Quality.*—The Coods Bottles manufactured by them are not of the standard quality, size, shape and colour.
- (3) *Strength.*—The bottles do not withstand the pressure and break while filling and after filling them in large numbers.
- (4) *Size and shape.*—The chief defect in bottles is that they are not of equal shape and their mouths are not of equal sizes. They don't

hold the balls tight because the grooves which hold the rubber rings are not made in correct sizes and hence the bottles leak and drop the balls down.

- (5) *Packing*.—Packing is very defective because we find heavy breakages while opening the cases.
- (6) *Price*.—The Indian bottles are sold much more cheaper than foreign ones namely at Rs. 27 per gross 10 ozs. size while foreign ones are at Rs. 32 per gross 10 ozs. There is a saving of Rs. 5 per gross on Indian bottles and yet we are not using them, why? because by using cheap Indian bottles we lose more than by using dearer foreign bottles.
- (7) By enhancing duty on foreign bottles, the Indian manufacturers will not get any benefit thereby, while we the users will have to pay extra duties for nothing, as we cannot use them for the above reasons.

Please note that after using and giving fair trials to the bottles manufactured by Allahabad and Ahmedabad Glass Works, we have indicated in this letter our personal experience. We are so much disappointed with these bottles that we had to warn our cartmen not to bring these bottles in exchange while they supply full bottles to the shop-keepers. These are the real facts which please place before the Tariff Board and request them not to enhance duty on Codd's bottles because our trade is dying already now and if the Tariff Board puts more burden on us then we will be totally perished. If the Tariff Board meeting is to be held in Bombay and if you find advisable, we shall be glad to approach in person to the Tariff Board to give our evidence and convince them of the above facts. Hoping to be excused for the troubles and requesting you to leave no stone unturned for the matter we remain,

Enclosure No. 2.

From M. A. Valiulla, Ahmedabad, to Messrs. Meyer Nissim, Bombay dated the 9th November, 1931.

Re INDIAN GLASS BOTTLES.

We are in receipt of your circular of the 5th instant, and note the contents, with thanks. We are not against of the protection duty if enhanced by Government but we are of opinion that no such duty be levied or enhanced unless the Indian glass factories are in a position to provide the bottles so strong as the same imported from foreign countries and also unless they are in a position to supply the full quantity required by the whole country. We understand that there are not sufficient glass factories in India to manufacture Sodawater bottles and the factories those manufacture these bottles are in a very limited number and these factories are not in a position to prepare bottles so good in quality as German make and also are not in a position to supply the full quantity required by the Indian markets. In the circumstances we request you to protest strongly against such action.

Enclosure No. 3.

From Messrs. P. Dhunjibhoy and Sons, to Messrs. Meyer Nissim, Bombay, dated the 12th November, 1931.

Re INDIAN GLASS BOTTLES.

We beg to inform you that we have never used Codd's Pa Sodawater bottles in our factory, but understand that the quality very inferior and the glass does not stand the pressure required. We had enquired in the market for Indian made bottles, understand that the quantity produced is very insignificant for the trade. Under the circumstances if Government were to increase duties on foreign imported bottles, it will simply add to our cost

which is already very high, and will not in any way assist the Indian industry, as they are not at all in a position to supply quality and quantity required by the trade. We hereby authorise you to please represent us at the Tariff Board if and when required and oblige.

Enclosure No. 4.

From Messrs. T. Ali Mahomed & Co., and Akberally Mahomedally & Co., Bombay, to Meyer Nissim, Esq., dated the 15th November, 1931.

Re INDIAN GLASS BOTTLES.

We understand that the Association of glass manufacturers have applied to the Tariff Board for an extra protection on glass and glass bottles, and it is obvious that such a protection in India can only take the form of an extra Customs Duty. We therefore appeal to you to lodge your complaint and counter charges against the sanctioning of an increased Customs Tariff, on the grounds that it is a natural impossibility for glass of an acceptable quality to be manufactured in India:—

- (1) Climatic conditions are against the tempering of the glass.
- (2) The necessary quality of sand is not available.
- (3) The necessary quality of metal is not available.
- (4) The necessary quality of water is not available.
- (5) The labour is inefficient.
- (6) The most modern type of machinery is not here.

Even if the proper machinery were here, and granting that the labour in time could become more efficient, points 1 to 4 are natural obstacle, which cannot be overcome. If artificial means were introduced to overcome these natural deficiencies, the cost would make the product prohibitive. The Indian made glass has now a protection in *ad valorem* duty on certain types of glass of 25 per cent. and tariff duty on other types of glass of about 35 per cent. This added to the low price, at which the Indian-made glass is now offered in the market, means that Indian-made glass is about 30 to 35 per cent. below the glass of European manufacture, and 12 to 15 per cent. below the glass of Japanese manufacture.

We also beg to put it to you that, if with so much in favour of the Indian glass manufacturers, they are not in a position to satisfactorily supply the demands, it can only be presumed that it is the natural obstacles which hinder the success of Indian glass factories. Therefore we consider that the request for an extra protection is unnecessary, and that the consumers would be coerced into paying higher prices for this inferior glass, or as an alternative, pay excessively for the superior European imported glass.

On this basis we request you to kindly protest and make up our case before the Tariff Board and oblige. Thanking you in anticipation.

(3) *Letter dated the 8th December, 1931, from Messrs. Meyer Nissim.*

With reference to your letter No. 675, dated Bombay, the 17th November, 1931, we beg to send you herewith our replies to the questionnaire which we trust you will find in order.

Enclosure.

Reply to Questionnaire.

1. We are interested in the imports of glass bottles especially Codd's Patent Sodawater, Crown-cork Mineral, Excise, etc., and therefore are not in a position to reply in respect of any other classes of glassware.

These glass bottles manufactured in India are not stocked by bazar merchants as they are quite unsaleable on account of very inferior quality of glass and appearance, and therefore there cannot be any competition in the same.

2-3. We quote prices for the last two years for the standard size of Codd's bottle 10 ozs. per gross c.i.f.c.i. Bombay or Indian port:—

	1930.	1931.
	37/9	36/6
	Rs. A.	Rs. A.
Customs duty	4 8	7 4
Port Trust	1 8	1 8
Clearing	6 8	0 8

4. We do not know.

5. We have no figures to compare.

6. No, there is no comparison between Indian and imported bottles. No, price for Indian bottle is very cheap even then consumers would never consider the Indian-made glass bottle at any price on account of the very poor quality of glass, appearance, packing, etc., size, shape and colour are also not uniform.

7. We do not know.

8. Yes, according to our knowledge climatic conditions are against the tempering of the glass, the necessary quality of materials such as metal, sand, water, etc., are not available, the labour is inefficient, and the modern types of machinery are not here.

9. Since the Indian-made bottles are not saleable in the market, they are not stocked by the merchants and therefore we cannot estimate the production of Indian glass bottles.

10. Yes, we do consider the Indian manufacturer at a disadvantage in respect of plant, machinery, labour, materials and climatic conditions, but not in respect of freights, Customs duty and other factors.

11. No.

12. Aerated and mineral water manufacturers, Brandy and Liquor Bottlers and those who require high quality and strength glass bottles. They are already affected to the extent of the gradual increase in Customs duty and will be further affected to the extent duties are further enhanced as they are absolutely unable to use the Indian bottles on account of the inferior quality of glass, size, shape, strength and appearance and will have to purchase the superior imported glass to pull on with their trade.

(4) *Letter dated the 11th January, 1932, from Messrs. Meyer Nissim, Bombay.*

I enclose for the information of the members of the Tariff Board fuller particulars in regards to imports of bottles and phials into India during the past five years and also the c.i.f. prices, landing charges and Customs duties.

IMPORTS OF BOTTLES AND PHIALS.

	1925-26.	1926-27.	1927-28.	1928-29.	1929-30.
<i>Sodawater Bottles.</i>	Gross.	Gross.	Gross.	Gross.	Gross.
United Kingdom	23,585	21,438	17,748	26,153	29,858
Other British	108	173	30	17	4
Total British Empire	23,693	21,611	17,778	26,770	29,862

<i>Sodawater Bottles—contd.</i>	1925-26.	1926-27.	1927-28.	1928-29.	1929-30.
	Gross.	Gross.	Gross.	Gross.	Gross.
Foreign Countries—					
Sweden	878	280	899	523	636
Norway	100	394	..	..	..
Germany	23,498	27,110	26,660	26,924	27,711
Netherlands . . . . .	..	..	50	1,081	1,456
Belgium . . . . .	..	154	4	1	..
Italy	1	150	144	15	..
Austria . . . . .	..	418	..	75	..
Czechoslovakia . . . . .	..	..	640	1,341	983
Japan	677	1,122	238	1,263	1,395
U. S. of America . . . . .	..	..	1	73	47
Pacific . . . . .	..	..	..	99	..
Other Foreign Countries . . . . .	..	6	1	1	15
Total Foreign Countries	23,154	29,634	28,637	31,396	32,243
TOTAL FOREIGN AND BRITISH	48,847	51,245	46,465	58,166	62,105

Other Bottles.

Total British Empire	71,424	58,865	61,191	61,918	71,480
Total Foreign Countries	416,896	469,102	401,587	465,943	569,415
TOTAL OTHERS	488,320	527,967	462,778	527,861	640,895
TOTAL FOREIGN AND BRITISH BOTTLES AND PHIALS.	597,167	579,212	516,193	586,207	702,998
	Rs.	Rs.	Rs.	Rs.	Rs.
	37,69,132	39,04,139	33,01,168	36,18,904	39,49,440

C.i.f. prices, landing, duty and clearing charges on standard size 10 ozs. (capacity) sodawater bottle for the last five years:—

	1927.	1928.	1929.	1930.	1931.
	s. d.	s. d.	s. d.	s. d.	s. d.
Per gross c.i.f.	41 6	40 10	39 6	37 9	36 6
	Rs. A.	Rs. A.	Rs. A.	Rs. P.	Rs. A.
Duty per gross	4 6	4 6	4 6	4 6	7 4
Port trust landing charges	1 8	1 8	1 8	1 8	1 8
Per gross clearing charges	0 6	0 6	0 6	0 6	0 6
Per gross	6 8	6 8	6 6	6 6	9 4

Packed in half gross crates.

**MESSRS. MEYER NISSIM, AND MESSRS. KATRAK &
CO., LTD.**

B.—ORAL

**Evidence of Mr. MEYER NISSIM, and Mr. E. B. PANTHAKY of
Messrs Katrak and Co., Ltd., recorded at Bombay, on
Wednesday, the 13th January, 1932.**

President.—Mr. Nissim, you are representing importers of glass bottles?

Mr. Nissim.—Yes, but I primarily represent myself.

President.—Are you authorised to represent all the other importers who have sent in representations to us?

Mr. Nissim.—All those who have sent in their representation through me. I think I have sent in about six or seven representations. One of them, Mr. Panthaky, who represents Messrs. Katrak and Company, is present here.

President.—We have received various other representations also more or less on the lines of the representations that have come through you, so that we might deal with all these more or less on the same lines.

Mr. Nissim.—Yes.

President.—I take it, the main complaint of importers with regard to bottles made in India is that they do not satisfy the requirements of a very large section of the market.

Mr. Nissim.—That is true.

President.—And judging from these representations I find that the complaints refer to three points: the first is the question of durability. I take it what that means is that the Indian bottles break more quickly in handling.

Mr. Nissim.—In handling, as well as in the case of soda water bottles they are not strong enough to hold the contents. The main difficulty is that they are not sufficiently reliable.

President.—As far as aerated water bottles are concerned it is not merely a question of transport, there is the question of the nature of the substance contained in the bottle?

Mr. Nissim.—Yes.

President.—Does that consideration apply equally to excise bottles?

Mr. Panthaky.—No.

President.—Is it possible at all from the experience of large importers like yourself to say what the life of Indian bottles is as compared with the life of imported bottles?

Mr. Panthaky.—We have no experience of Indian bottles because we don't handle them for the reason that they do not suit our requirements.

President.—So that it would not be accurate to say that you have any experience of Indian bottles. I take it that your position is that the firms whom you represent did try to purchase Indian bottles but that they found from their short experience that the bottles did not suit their requirements.

Mr. Nissim.—Yes.

President.—Apart from the question of durability, I understand there is also the question of appearance. Is that an important point?

Mr. Panthaky.—Yes.

President.—Is it partly a question of finish and partly a question of colour?

Mr. Panthaky.—Colour, finish, size, shape, everything.

President.—What I want to know is whether your objection to Indian made bottles on the score of appearance is more in respect of the finish or in respect of the colour of the glass?

Mr. Panthaky.—There are three or four different classes in one dozen Indian made bottles.

President.—What is the trouble with the colour?

Mr. Panthaky.—You will find all shades of colour in one lot—some greener, some light green and some deep green. If the bottle is deep green coloured water inside the bottle cannot be made out.

President.—In regard to aerated water bottles does the question of appearance matter very much?

Mr. Panthaky.—Yes. If you give a bottle of soda water in a bottle which is blue, you can't make out what is inside or whether there are any extraneous particles in the water.

President.—I am a poor representative of the consumer of stuff contained in bottles. But I hardly ever see a soda bottle when I am served with soda.

Mr. Panthaky.—That is true, but there are certain customers who look at the bottle to see if there is any dirt, *i.e.*, foreign matter in it.

President.—I should like to be quite clear about the point. Is the objection really on the part of the consumer or on the part of the dealer?

Mr. Panthaky.—Both. There are some consumers who never take a bottle of soda water unless they can see what is inside.

President.—What about the finish?

Mr. Panthaky.—There is no shape.

President.—What is wrong with the finish of the Indian made bottles?

Mr. Panthaky.—Ugly shape, some have short neck, some have long neck and the mouth of the bottles is not always of the uniform size and the last is the chief point for us when putting into the machine. When there is a big mouth the gas leaks out.

President.—The third point I take it is with regard to uniformity of capacity?

Mr. Panthaky.—Yes: sometimes they are 8 oz. sometimes 9 or sometimes 10 oz. inside content.

President.—And therefore the consumer who gets his supplies contained in Indian bottles, about the uniform capacity of which he is not sure, he is reluctant to take his supplies from that source?

Mr. Nissim.—The consumer is not so particular about the content.

President.—That really is a consideration that applies to the manufacturer of aerated water?

Mr. Nissim.—Yes.

President.—Are you interested in excise bottles?

Mr. Nissim.—We do import excise bottles.

President.—Do you know precisely the provisions with regard to the arrangement for the purchase of excise bottles?

Mr. Nissim.—No. The excise authorities furnish us with a specification which we have to carry out. This specification is sent forward to Europe by us and we get our consignment of bottles accordingly.

President.—Do you know precisely the form in which these specifications are drawn up?

Mr. Nissim.—I can produce a copy.

President.—We have been in communication with Excise Commissioners and we have had replies from two or three Commissioners and the impres-

sion I have gathered is this: in the majority of provinces the provision is simply to the effect that the bottle must contain not less than a specified quantity of spirit.

Mr. Nissim.—That is the most important thing: I don't think they worry much about the shape or size.

President.—So that if the variation is in the upward direction the Excise Department are not concerned with it?

Mr. Nissim.—They want so much in the bottle.

President.—Not less than a specified quantity: if it happens to be more the Excise Department is perfectly pleased?

Mr. Nissim.—I suppose so.

President.—But the only Excise Department where the provision is on somewhat different lines is the Punjab where they don't say 'not less than a specified quantity' but the bottle must contain so much and the bottle must be embossed with the name of the maker and the quantity which is supposed to be contained in it. There I can imagine the difficulty would be greater, but in regard to cases where the provision is simply that it should contain not less than a specified quantity, a certain amount of variation, provided it is in the right direction, does not offend excise provisions?

Mr. Nissim.—That is right.

President.—The really important point which I want to raise is this. I can quite appreciate the grounds on which importers have raised their objection: what I should like to know is whether the objection that you have raised against Indian bottles is against Indian made bottles made by hand which are mouth blown or equally also against Indian bottles made by machine?

Mr. Nissim.—I take it that in Europe they are all machine made. In India they have mouth blown and also machine made. What I gather is that the machine production in India does not come up to the standard of the machine made article in Europe in all respects.

President.—Is it possible for you to give us some figures to indicate the margin of variation in respect of the capacity in the case of European made bottles and in the case of Indian made bottles, because I understand in both cases there is variation.

Mr. Nissim.—Do you mean to say in European made bottles there is also some variation?

President.—The real point is that the variation is greater in Indian bottles.

Mr. Panthaky.—Regarding the question of variations I must tell you frankly that I have never found the bottles made in England or Germany varying from the standard size. The variation there is practically none at all. But in the case of Japanese bottles there is.

President.—We are not concerned with Japanese bottles.

Mr. Panthaky.—In the case of Indian bottles there is no standard.

President.—Is it your experience or is it your assumption?

Mr. Panthaky.—We are working like coolies. We know all these things.

President.—From what source did you buy Indian bottles?

Mr. Panthaky.—I bought from Ahmedabad, and Allahabad.

President.—How long ago was that?

Mr. Panthaky.—That was a year or two ago. From Ahmedabad I bought those bottles and I gave them a chance twice. If we were to continue to purchase from them, we stood to gain a lot. Ahmedabad bottles cost only Rs. 27 per gross, whereas for English and German bottles we have to pay Rs. 32. There is a saving of Rs. 5 per gross. Why should we not save that money if we could? The Agent of the Ahmedabad

bottles came to me and said that if I continued to use their bottles, then their bottles would actually be running in the market.

President.—I am sorry to interrupt. These general statements do not help me.

Mr. Nissim.—I am afraid you will find it rather difficult to get the information from us. Dealers state that there is a big variation in the case of Indian bottles, but personally I have no knowledge of it.

President.—We have had representations of this kind in other enquiries and I find on an examination—I don't say in all cases, but in a number of cases—the objection resolves itself into a prejudice which has not been really tested by experience.

Mr. Nissim.—It is quite possible.

President.—The point I want to raise for your consideration is this. If it is true, as you suggest, that Indian bottles are defective in all these respects, there are two ways in which the defects may be remedied. First it is necessary that the manufacturers should provide themselves with up to date equipment and the other is that they should provide themselves with first class technical supervision. Now as far as the Allahabad factory is concerned, we are satisfied that their equipment is quite up to date. What they apparently lack is good technical supervision. That is expensive. If, at present prices and at their present costs, they are not able to provide that kind of expensive supervision, it is legitimate to suppose that if we could grant them a little assistance, they would be able to have good technical supervision and remedy the defect.

Mr. Nissim.—The third factor is whether the Indian materials can produce suitable glass. That is the most important point. I am not a technical man and therefore cannot say.

President.—I am not either.

Mr. Nissim.—I do not know whether the materials are as good as the materials elsewhere. What I gather is that the materials in India to produce glass are not good. Assuming you had the technical knowledge and you had good machinery but if you had not the materials, you would not produce suitable bottles. That is the most important consideration. You must fathom the point whether you can obtain in India suitable materials. If suitable materials are available, also good machinery and supervision, then of course a case might be made out for helping the industry. If the materials in this country are not as good as those found elsewhere, it would be a waste of money.

President.—It is a perfectly correct position. Now supposing as the result of this enquiry comparing the quality of the various materials in India with corresponding materials in Europe, we are satisfied that it is possible in India to find materials more or less comparable with materials in Europe, supposing that was the position, then your objection will be met.

Mr. Nissim.—That is so. What I say is this. If all things are equal, then a case would be made out for helping the industry.

President.—I am glad you have stated your position clearly.

Mr. Nissim.—That is what I would say. Quite apart from representing the interests of an importer or anybody else, if the conditions in India are very much the same as they are elsewhere, then of course a very good case will be made out for helping the industry or affording it protection. You might give a bounty or you might enhance the import duty.

President.—If we are satisfied with the kind of sand, soda, lime and so on.....

Mr. Nissim.—Climate or whatever else be necessary.

President.—If those things which are available in India for the manufacture of glass are as good or nearly as good as those available in

Europe and provided also the works are well equipped, then you would suggest that protection might be granted in order to enable the industry to provide themselves with the necessary supervision and make first class bottles.

Mr. Nissim.—Yes.

President.—Are you or are any of your constituents interested in Japanese bottles?

Mr. Panthaky.—I used formerly. Medicine bottles come in large quantities, but I have only used Japanese bottles.

President.—What is your experience of Japanese bottles?

Mr. Panthaky.—I must tell you plainly that I had used during the war Japanese bottles when the import of English bottles stopped totally. We began to use Japanese bottles. Then I paid Rs. 18 per gross. They were extra strong glass and A1 quality and they were better than English bottles. The Japanese in time got orders for a lot of bottles. They became cunning and began to supply low quality and asked for more money. When the war came to an end, I paid per gross Rs. 66 for the same bottles—not even the same bottles, but for inferior bottles.

President.—They are quite as bad as Indian bottles?

Mr. Panthaky.—They can produce nice bottles. There have expert men to produce bottles. The bottles do not come now. We are not indenting Japanese bottles.

President.—May I take it then that your objection against Indian bottles in the main also applies to Japanese bottles?

Mr. Panthaky.—About Indian labour and Japanese labour?

President.—We are not considering the question of labour. I am simply on the question of the quality of bottles which are found in the Indian market. As far as your experience goes, Japanese bottles are as bad as Indian bottles.

Mr. Panthaky.—No, they are as good as European made bottles.

President.—But actually the kind of bottles that they send?

Mr. Nissim.—If they send—I grant they have not sent it up till now—we will say that the Japanese bottles are satisfactory. From the figures that we have, Japan does not import to this country much in the way of bottles.

President.—May I take it as far as you are concerned, you would not care to import Japanese bottles?

Mr. Nissim.—No.

President.—I have got here the trade figures. I am taking the trade returns relating to total bottles and phials. If you look at 1929-30 figures, the total imports into the country of bottles and phials was 39.9 lakhs. Out of that we imported 13.72 from Japan.

Mr. Nissim.—I have got these figures.

President.—If there is a section of the Indian market corresponding to 13.72 lakhs which are at present supplied by Japan, you would not object to leaving that section of the market to be supplied by Indian bottles.

Mr. Nissim.—Are these figures in gross or in lakhs?

President.—The point that I want to put before you is that as far as you are concerned, you don't want to import Japanese bottles?

Mr. Nissim.—No.

President.—At present there is a section of the Indian market measured by Rs. 13.72 lakhs worth of bottles which is supplied by Japan. As far as that section of the market is concerned, you would not object to India being allowed to supply that?

Mr. Nissim.—Certainly not. The opinion of dealers is that Japanese bottles and Indian bottles are more or less on a par. That is what I can

gather. Such bottles being inferior to the bottles that we get out from Europe, I take it that they would not compete with the imported bottles of superior make. At least the people who are accustomed to superior bottles would not touch the inferior bottles and therefore I personally should not think that there would be any objection to Indian manufacturers turning out something with the help of protection which will compete with the inferior quality bottles.

President.—The question is not really between Japan and any other country. The question is that a certain section wants inferior bottles and another section wants superior bottles. India is in a position to supply the inferior bottles. Why should not India be allowed to supply the inferior bottles?

Mr. Nissim.—I quite understand. It is like cloth. Some people want superior cloth and others inferior cloth.

President.—You have no idea of the small size bottles say 1 to 8 oz.?

Mr. Panthaky.—We get 5, 4 and 8 oz.

President.—You have no precise information as to which is the country which mainly supplies these small size bottles to India?

Mr. Nissim.—You can get it from the trade returns.

President.—I can only make an inference. The inference that I draw is that the whole of the bottles that we get from Japan are the bottles that correspond to the small phials made in Indian factories.

Mr. Nissim.—It must be so.

President.—As far as that is concerned it seems to me it is a legitimate outlet for the Indian industry. There is one point with regard to the trade returns on which I should like your opinion. You have referred in your representation to bottles such as Codd's patent and Crown cork mineral. These trade returns relating to soda water bottles, do they include Codd's bottles and Crown cork bottles?

Mr. Nissim.—I should think so.

Mr. Panthaky.—There are many factories which are using Crown cork bottles.

President.—Which in trade parlance would be described as soda water bottles.

Mr. Panthaky.—Yes.

President.—There is one little point that arises from the figures that you sent us yesterday. I want to draw your attention to it. If you look at your statement of c.i.f. prices for the last five years, in 1927, the duty was 15 per cent.

Mr. Nissim.—Yes.

President.—In 1931, you have calculated the duty at 25 per cent.?

Mr. Nissim.—That is right. That is from the 1st of March, 1931.

President.—I gather from these figures that in spite of the increase in the duty, the consumer gets his soda water bottles at a cheaper rate than in 1927.

Mr. Nissim.—Yes, that is so.

President.—In the first place I want to clear up a little point. In the statement of prices you add to the c.i.f. price landing, duty and clearing charges. If I add all the three figures given in 1927, it comes to Rs. 6.4 instead of Rs. 6.6. I suppose you allow that As. 2 for commission.

Mr. Nissim.—The total according to the figures before you is Rs. 6.4.

President.—You allow that margin of As. 2 in every case?

Mr. Nissim.—No. The clearing charges should be As. 8 instead of As. 6. A mistake has been made in typing. There is no commission. The commission is included in the price.

President.—Calculating on these figures, the landed duty paid price in 1927 in rupees was 34.03. In 1931 with 25 per cent. duty it was 33.58.

Mr. Nissim.—Yes, taking the exchange at 1s. 6d.

President.—Yes, right through. Therefore if the duty of 25 per cent. is retained, there is no additional burden thrown on the consumer as compared with 5 years ago.

Mr. Nissim.—There is, in-as-much as he does not get it at a cheaper price.

President.—There is no corresponding reduction.

Mr. Nissim.—The price of commodities has generally come down. Supposing we take only the c.i.f. price, it has come down since 1927.

President.—By general depression in price?

Mr. Nissim.—Because labour is cheaper than before. It is mostly German labour. German labour costs have come down. Therefore the consumer here does not get the advantage of the cheaper bottles.

Mr. Panthaky.—The consumer is also denied the advantage of the reduction in freight.

Mr. Nissim.—The cost of production generally has come down in various ways, labour being cheaper and freight also being cheaper. Therefore if you put up a duty of 25 per cent. which we are now paying, it means that the consumer is deprived of the advantage of the reduction in the cost of production.

President.—Actually the amount that he pays is slightly less?

Mr. Nissim.—Yes, that is the case in all commodities. If you take the price of cotton, you will find the same reduction.

President.—That is quite true. Now we have not, as a Board, had an opportunity of considering the line that we ought to take on your representation, but I should like to put a hypothetical case to you. Suppose on consideration we found that there was a case, consistently with protection being granted to the Indian industry, for leaving out of the protective scheme certain classes of bottles which India is not at present in a position to produce, can you suggest to us precisely what Customs arrangements may be made for the purpose of distinguishing them? I put that to you because you have agreed that there is a large quantity of inferior bottles which India might just as well capture. At the same time, if your contention is correct, there is a quantity of superior bottles which India cannot make?

Mr. Nissim.—The only way to differentiate these bottles is by ascertaining their quality. How are you going to arrive at the quality of bottles?

President.—Supposing the Customs authorities adopted a description like Codd's bottles, would there be any difficulty?

Mr. Nissim.—Supposing there is an imitation of Codd's bottles?

President.—I don't know. Are Codd's bottles patent or is it only the machinery which is patent?

Mr. Hodkin.—The patent is in the type of bottles.

President.—So, imitation would be attended with penalties?

Mr. Hodkin.—Yes.

Mr. Nissim.—In that case you can say straightaway Codd's bottles.

President.—What about Crown cork bottles?

Mr. Nissim.—They are practically the same. Crown cork bottles are bottles without the marble inside.

President.—That is to say if that class of bottles were described for Customs purposes as Codd's bottles, no difficulty would arise. We are sure

about Codd's bottles. They mean a definite class of bottles which can be described easily?

Mr. Panthaky.—Codd's bottles are bottles with the marble in. They are not made stronger. Even those bottles are sometimes weak.

Mr. Nissim.—All bottles designed for holding carbonated water would be a sufficient distinction. We consider them as superior bottles. They are generally supposed to be of superior quality.

President.—As a tentative measure we will accept that.

Mr. Nissim.—Perhaps that might get over the difficulty. If they are declared suitable for carbonated water, we might say that those bottles are superior and therefore should be exempted.

President.—Supposing ultimately in the scheme of protection it was decided to leave out all bottles designed for holding carbonated water, would that satisfy you?

Mr. Nissim.—I should think so. I understand that the Excise Department also want a certain amount of testing.

President.—I will read out to you the relevant portions from the letters that we have received. This is from the Bengal Commissioner of Excise:—

“So far as Bengal is concerned, the representation from the importers of glass bottles that bottles of Japanese or Indian manufacture are usually condemned by the Excise Commissioner is incorrect and no bottles whether Japanese, Indian or of other countries have been condemned by this Department in Bengal.

In Bengal, the Government have prescribed minimum contents of quarts and pints of spirits, offered for sale to the public. It has not been ruled that bottles containing spirits must be uniform in their containing power. It has been ruled that bottles of spirit offered for sale and reputed to contain a quart of liquor must not contain less than 22 ounces of spirit and bottles reputed to contain a pint of liquor must not contain less than 11 ounces of spirit.”

The Commissioner of Excise, Bihar and Orissa, says:—

“Vendors in this province are compelled to bottle exact quantities of 20, 10 and 5 liquid oz. measured by measures graduated by the Mathematical Instrument Office which they are required to keep for the purpose and (that) they are allowed to put these quantities into any bottles they can obtain big enough to contain them. Consequently there neither has been nor will be any occasion to decide the merits of different kinds of bottles”.

The same is the case in the Central Provinces. It is only in the Punjab that special difficulty arises. This is what the Punjab Government say:—

“With effect from April 1st, 1931, this Government introduced into the Punjab a system by which all Indian made foreign spirit and country spirit distilled in the Punjab and sold for consumption in the province was to be bottled only in bottles bearing the words Punjab Excise, figures showing the contents of the bottle 26½ ounces in the case of quart bottles, 13½ ounces in the case of pint bottles and 6½ ounces in the case of half pint bottles, the name or mark of the manufacturer of the bottle, and a line on the neck up to which the bottle had to be filled in order to contain the proper quantity”.

Mr. Nissim.—That is all quite simple. That can be done when the bottle is made. It is not at all difficult. It seems to me that we cannot very well object to ordinary liquor bottles. From what I gather from the portions which you have read, the Excise Department do not insist on any special qualification except as regards the content. The content is the most important thing.

President.—So that, as far as you are concerned, a provision of this kind ought to satisfy you?

Mr. Nissim.—Yes.

Mr. Rahimtoola.—You have written in your letter that you represent here a certain number of clients of yours?

Mr. Nissim.—Yes.

Mr. Rahimtoola.—I take it that you will be able to substantiate the views which they have expressed?

Mr. Nissim.—I am here to support their views.

Mr. Rahimtoola.—Apart from the views which you have expressed in reply to the Questionnaire?

Mr. Nissim.—Yes. Instead of them all coming, they have given me authority to represent their views.

Mr. Rahimtoola.—Over and above the seven applications you have sent in, you have also got a number of others and you wanted the Tariff Board to let you know whether they would like you to send them.

Mr. Nissim.—I don't follow the question.

Mr. Rahimtoola.—You say "we beg to enclose herewith copies of reports received from some of our clients which please file for reference. We shall thank you to please let us know if it is necessary for all our clients to send separate applications to the Board and answer the Board questions separately".

Mr. Nissim.—Their views are more or less the same.

Mr. Rahimtoola.—My point is that though you have not sent us their views they are identically the same as yours?

Mr. Nissim.—Yes, that is right.

Mr. Rahimtoola.—Are they all Bombay people?

Mr. Nissim.—Some of them are outside Bombay.

Mr. Rahimtoola.—Are there any people from Calcutta?

Mr. Nissim.—We are only concerned with the Bombay Presidency. We have also some clients in Secunderabad.

Mr. Rahimtoola.—As regards the question of soda water bottles, your point is that you are personally interested in Codd's Patent, Crown cork Minerals and Excise bottles. Those are the kinds of bottles which are grouped in the Trade Returns under the big heading "Soda Water Bottles".

Mr. Nissim.—There is another heading "Other bottles".

Mr. Rahimtoola.—In the Trade Returns I find two broad headings, viz., "Bottles and phials—Soda Water Bottles" and "Bottles and phials—others". I want to know exactly where the bottles in which you are interested come in?

Mr. Nissim.—Under the heading "Bottles and Phials—Soda Water Bottles".

Mr. Rahimtoola.—That means the first group—"Bottles and Phials—Soda Water Bottles".

Mr. Nissim.—That is what we are concerned with.

Mr. Rahimtoola.—You have rightly told the President, having regard to the patriotic feelings which you possess, that the most important point is the question of raw materials and if that question is fully investigated by the Board and if the Board are satisfied, then you would have no objection to protection being granted to the Glass Industry?

Mr. Nissim.—No.

Mr. Rahimtoola.—There is one thing which I don't understand in your reply to Question 8 where you say that even the quality of water is defective.

Mr. Nissim.—This is what we say: "According to our knowledge climatic conditions are against the tempering of the glass, the necessary

quality of materials such as metal, sand, water, etc., are not available, etc." As I said before, I am not a technical man. The information which I have is repeated here. I could not tell you whether the water is defective in any way or whether there is any special kind of water required. I could not tell you whether it should be hard water or soft water. It is just possible that the quality of water available in places where the factories are situated may not be suitable.

Mr. Rahimtoola.—What it can possibly mean is that water may not be available in sufficient quantities?

Mr. Nissim.—As you know, there is hard water and soft water. It is just possible that the kind of water available round about the factories is not the water it should be. If that is so, it should be possible to remedy it. I think you can soften or harden water chemically according to requirements.

Mr. Rahimtoola.—I asked you in the beginning whether you would be in a position to substantiate the statements made here.

Mr. Nissim.—Not as far as water is concerned.

Mr. Rahimtoola.—As regards the question of Indian bottles, Messrs. Katrak and Company have told us that in spite of the fact that the Indian bottles are cheaper by Rs. 5 and in spite of the fact that they are available, it has not been found possible on other grounds to go in for them. In support of that statement, Mr. Panthaky has given us his personal experience of the bottles manufactured by Allahabad and Ahmedabad Glass Works. I want to know whether Mr. Panthaky knew at the time of the purchase that they were hand made or machine made?

Mr. Panthaky.—No. We only see the bottles and we do not attempt to find out whether they are hand made or machine made.

Mr. Rahimtoola.—You are not in a position to tell me whether the machine made bottles are good or bad?

Mr. Nissim.—We only know that they are Indian made bottles. Whether they are machine made or hand made, we are not in a position to say.

Mr. Rahimtoola.—Your knowledge at present does not go far enough to say that even machine made bottles in India are defective?

Mr. Nissim.—I would say yes, because I would take it that quite a large number of Indian made bottles are machine made. If Indian made bottles as a whole are defective, then they would come under the category of defective bottles.

Mr. Rahimtoola.—Not necessarily.

Mr. Nissim.—We are telling you in a general way.

Mr. Rahimtoola.—The Tariff Board's duty is to get exact details as far as possible. Any general statement will not help us.

Mr. Nissim.—At least I am not in a position to say that. I will only say that Indian made bottles as found in the market are defective, or in other words, bottles purchased by Mr. Panthaky's firm.

Mr. Rahimtoola.—Without going into the question whether they are machine made or hand made?

Mr. Nissim.—Quite so.

Mr. Rahimtoola.—Have you any competition at present from Japan in regard to the superior bottles that you are importing?

Mr. Nissim.—No.

Mr. Boag.—There is just one small point I want to clear up. Would the definition which you suggested just now cover any other bottles than Cods and Crown cork bottles?

Mr. Nissim.—That definition is intended merely for these two kinds of bottles which are used for aerated waters.

Messrs. Carew & Co., Ltd., Calcutta.*(1) Letter dated the 4th November, 1931.***INDIAN GLASS INDUSTRY.**

With reference to Resolution No. 453-T. (2), dated the 20th ultimo, of the Government of India in the Department of Commerce, we have the honour to address you on this subject in so far as it affects this Company.

In our business as Distillers and Spirit Bottlers, we use a considerable quantity of glass bottles. These bottles are specially made for us and are all imported. Each bottle is guaranteed by the manufacturers to have a certain defined capacity as required under the Excise regulations of the Provinces in which we operate. We have had samples of Indian-made bottles sent us but none of these bottles were so presentable as the imported bottle and neither could Indian manufacturers guarantee that their bottles would all be of exactly the same size. We understand that there are technical difficulties which prevent the manufacture of glass of good quality in this country, and this will account for the Indian-made bottle being very inferior to the imported bottle. The low quality of the glass of which Indian-made bottles are made results in a high percentage of breakage and this with the present high duty in spirit means serious loss to spirit bottlers.

We assume that extra protection if granted to the industry will take the form of an increase in the Tariff Duty on imported glass. There is already a heavy duty of 25 per cent. *ad valorem* imposed on imported glass and glass bottles. Also most high quality imported bottles come from the Continent of Europe and the fall in the Rupee in relation to continental currencies is in effect a further protection to the Indian Glass Industry.

In view of the protection and advantage the Indian Glass Industry is now enjoying, and also bearing in mind that the industry is incapable of turning out bottles of the high quality required for the liquor trade, we submit that this industry has no case for protection against these high quality bottles and a general increase in duty on imported glassware will simply amount to companies like ourselves being penalised with no advantage to the industry whatever, since these companies cannot use the inferior Indian-made bottles.

(2) Copy of letter No. 155/E., dated the 7th November, 1931, from Messrs. Carew & Co., Rosa, United Provinces, to the Excise Commissioner, United Provinces.

We have the honour to state that we are informed by our Managing Agents in Calcutta that the Indian Glass Industry has applied to Government for extra protection against imported glass and our Managing Agents are protesting strongly against this on the assumption that extra protection, if granted, will result in a further increase in the duty on glass bottles which is now 25 per cent. *ad valorem*.

As you are aware, bottles for our country spirit contract have to be imported from Home and we are of opinion that an increase in the cost of bottles will result in increased cost to the consumer of country spirit, as although bottles are returnable by consumer, a fair proportion of them is not returned. We should be glad if you could see your way to represent this to the Indian Tariff Board and any protest together with five copies must be in the hands of the Secretary, Indian Tariff Board, Town Hall, Bombay, by the 20th instant. We shall be much obliged if you would be good enough to inform us if you propose to take any action in this connection.

No. 399-C. III—597-B, dated Camp Roorkee, via Allahabad the 15th November, 1931, from the Excise Commissioner, United Provinces.

Copy forwarded to the Secretary, Indian Tariff Board, Town Hall, Bombay, with the remark that any increase in the price of liquor to the

consumers which is already prohibitive owing to the prevailing economic depression, is likely to lead to illicit distillation and loss of Government Revenue from Excise.

(3) *Letter No. 3718, dated the 4th December, 1931, from Messrs. Carew & Co., Ltd., Calcutta.*

With reference to your letter No. 692 of 19th ultimo, we have the honour to send you herewith our replies to the questions which we can answer.

ANSWERS TO QUESTIONNAIRE.

6. Indian-made glass bottles which have been offered to us are neither so presentable nor of the quality of imported bottles. Indian-made bottles are useless to spirit bottlers on account of their poor appearance and probable high percentage of breakage. The prices of these bottles are lower than those of imported bottles and this we consider is due to their inferior quality and to the fact that there is a large second hand market for bottles which have entered the Country as containers for Spirits and Beers. These second hand bottles are in no way inferior to the imported empty bottles but are sold at about half the price.

11. We have no reason to suppose that foreign manufacturers are selling bottles to India at uneconomical prices. On the contrary we are of opinion that we are being charged higher prices than Home bottlers. Before the fall in sterling, German and French spirits were being imported into Calcutta at 7s. 6d. and 8s. 6d. per case of one dozen quart bottles of liquor. These low rates are only possible with bottles of prices less than those we are paying as we found we could not compete with these rates.

12. We do not know which are the principal industries which will be affected by a protective duty on glass but we think the spirit bottling industry is one of them. This industry will be affected by whatever amount of extra duty is imposed on its imported bottles since it cannot use Indian-made bottles.

Messrs. Daw Sen & Co., Calcutta.

Letter dated the 6th November, 1931.

It has come to our notice in the issue of the Indian Trade Journal of October 29th, that the Association of Indian Glass Manufacturers have applied to the Tariff Board for an extra protection on glass and glass bottles.

While we have been at all times ready to consider supporting Indian industry, and as large buyers of bottles of all kinds for our condiments, we were not reluctant to make several trial purchases locally, Allahabad, and other centres, and each time, the manufacture and appearance failed to satisfy our requirements to any extent, and ultimately we had to buy exclusively bottles from England, Germany, Holland and Japan.

We also would like to bring to your notice that though Indian glass is about 30 per cent. cheaper than European manufacture and 12 per cent. below Japanese, they are not in a position to satisfy the demand satisfactorily and we deem that their request for extra protection is uncalled for and unnecessary.

We append below our reasons for stating that it seems a natural impracticability for glass of an acceptable quality to be manufactured in this country:—

- (1) Climatic conditions are against the tempering of the glass.
- (2) The necessary quality of metal is not available.
- (3) The necessary quality of sand is not available.

- (4) The necessary quality of water is not available.
- (5) The labour is inefficient.
- (6) The most modern type of machinery is not here.

Messrs. A. Scott & Co., Rangoon.

Letter dated the 6th November, 1931.

We have the honour to refer to the application of the Association of Indian Glass Manufacturers to the Tariff Board for an extra protection on glass and glass bottles. As importers and users of glass bottles for the Aerated Water Trade we are concerned that you should have before you our views on the application of the Association in so far as it covers bottles of this description.

In an experience now lasting over three quarters of a century, we have never even been offered bottles of Indian manufacture suitable for the Mineral Water Trade. For many years the bottles used in the trade were almost exclusively of the Codd's pattern, that is the bottle which is sealed by the pressure of gas acting on a glass marble. These bottles have certainly never been manufactured in Burma and we have not heard of them ever having been manufactured in India. In recent years, specially in Burma, there has been a distinct change over to the more hygienic system of bottles sealed with metal crown corks. Here again bottles of this type known as the crown cork pattern have never been manufactured in Burma, nor so far as we know have they been manufactured in India. In recent years tremendous strides have been made by bottle manufacturers in producing bottles manufactured by an automatic process securing a degree of uniformity and exactness in manufacture which registered a great advance on the methods previously employed.

To-day bottles for the Mineral Water Trade is a very specialised business and it will be appreciated that as these bottles have often to stand high pressures it is essential that the material used and the process employed must be such that as a matter of public safety, there should be such a standard of manufacture that the bottles can be used by the public with confidence. So far as we are aware the material for manufacturing to the standard required is not available in India, and we believe that the annealing of glass to stand high pressures presents problems in India due to climatic conditions which have not been satisfactorily solved. So far as Burma is concerned the most modern type of machinery is not here and we have yet to learn that it is in India. The making of glass bottles to the standards prevailing to-day is a matter requiring experience and much skill. So far as Burma is concerned this does not exist and we have yet to learn that it exists in India. So far as bottles of the Crown Cork pattern are concerned manufacturers work to existing standards in co-operation with manufacturers of Crown Cork Metal tops, to ensure accuracy of fit and to ensure that the necessary degree of tempering is employed, so that in the operation of sealing the bottle the locking ring on the bottle is not crushed or broken.

We mention these details to ensure that the Board may appreciate that the term "Bottles" is applied to the Mineral Water Trade covers a specialised field where the combination of materials, experience and skill plays an important part.

The existing tariff duty on bottles represents in itself a very considerable protection and until such time as it is established that materials and labour, skilled and unskilled, and necessary machinery is available we cannot see how any case can be made out for the protection of the specialised product about which we write.

Messrs. C. & E. Morton (India), Ltd., Cawnpore.

Letter dated the 7th November, 1931.

In accordance with your invitation published in the edition of the "Capital", dated the 29th October, 1931, we take this opportunity of expressing our views in connection with the Glass Industry in India.

We are manufacturers of confectionery (our factory being situated at Marhowrah, Bengal and North Western Railway, District Saran, Behar) and we are now arranging to sell our sweets in half pint screw cap bottles. When we decided to adopt this form of packing we made exhaustive enquiries throughout India and ascertained the following facts:—

- (1) That Indian factories do not manufacture *white* glass, which is essential for our trade.
- (2) That no factory in India can manufacture a bottle (even with green glass) with a screw thread on the neck to take a screw cap.

We are therefore compelled to obtain our requirements from England, and as you are aware there is already a duty of 25 per cent. *ad valorem* on all glassware imported into India.

You will, no doubt, receive requests from glass manufacturers in India for further protection, and we are therefore desirous of pointing out that *by increasing the import duty on glass you will be killing another Indian industry, namely, confectionery in bottles.* The two main factors in this industry are sugar and bottles, and since we have already been penalised by the increase in price of Indian sugar—brought about by the increased duty on imported sugar we consider it will be grossly unfair if we are further handicapped by an additional duty on bottles.

We are firmly convinced that our industry should be given premier consideration, as the Glass Industry, adequately protected as it is by the existing import duty, has nothing to fear from foreign manufacturers of green glass. We admit that our industry is also protected by an import duty of 50 per cent. on foreign confectionery, but unfortunately this protection is considerably outweighed by the increased prices of sugar. As a matter of interest, we would mention that manufacturers in England obtain their sugar for *less than half the price* we are now paying in India.

Further, an increase of import duty on glass would be of considerable advantage to foreign suppliers of confectionery in bottles, since we presume the additional duty would not be applied to filled bottles of sweets coming into the country, as it would be to empty bottles.

Finally, should it be decided either now or at some later date to give further protection to the Indian Glass Industry, we consider this protection should be definitely confined to the green glass section of the trade, as no useful purpose would be served in further penalising importers of white glass, and as we have already emphasized, considerable harm would be done to the bottled confectionery industry in India.

We realise that you are desirous of safeguarding Indian industries to the fullest possible extent, and we trust that you will give our point of view your very careful consideration.

Messrs. Express Dairy Co., Ltd., Calcutta.

Letter dated the 7th November, 1931.

We understand that the Indian Glass Manufacturers have applied for extra protection on glass bottles.

As users of imported bottles on a fairly large scale we consider further protection would be extremely unfair as Indian-made bottles are in no way suitable for our purpose.

Messrs. Spencer & Co., Ltd., Madras.*Letter dated the 10th November, 1931.*

With reference to your enquiry through the Indian Trades Journal regarding the granting of protection to the Glass Industry of this country, we, as importers of a large quantity of glassware, particularly bottles, feel that the time is inopportune for the granting of such protection until a considerable improvement has been made in the manufacture, not only in the quality itself but in the uniformity of the capacity.

A definite guarantee that bottles will withstand the pressure they are called upon to bear is also looked for.

We might say that we are large aerated water manufacturers as well as bottlers of our own drugs, etc., and we have from time to time endeavoured to place business for our bottles with the manufacturers in India with results far from satisfactory to ourselves and our shareholders.

Carlsbad Mineral Water Manufacturing Co., Ltd.*Letter dated the 10th November, 1931.***TARIFF PROTECTION FOR THE INDIAN GLASS INDUSTRY.**

We beg to take the opportunity to address you, in connection with the application of the Association of Indian Glass Manufacturers to the Tariff Board for extra protection for the industry and the Resolution No. 458-T. (2), dated the 20th October, 1931, of the Government of India in the Department of Commerce, so far as it affects this Company.

As the largest consumers in India of imported bottles for the Mineral Water Trade, we feel that any further protection to the Indian Glass Industry would be detrimental to our interest as also that of other high class mineral water manufacturers in India.

The Indian made glass mineral water bottle has now a protection in the *ad valorem* duty of 25 per cent. and the present depreciated value of Indian currency in relation to Continental and American currency already provides a protection to the Indian Glass Industry.

If a further protection was given to the Indian Glass Industry in the form of an increase in the Tariff Duty on imported bottles it would mean giving this industry undue preferential treatment to the detriment of importers of foreign bottles, who are unable to obtain their requirements in India.

The Indian Glass Industry is at the present time not in a position to supply anything but the poorest quality of glass containers and as such they would fail to benefit by any Tariff protection so far as it relates to bottles for the mineral water trade.

We are of opinion that the want of success in the Indian Glass Industry is due to want of modern machinery and methods, technical knowledge and skilled labour and lastly to the natural difficulty of obtaining the correct quality of sand and water, all essential factors in the making of bottles of uniform design and dimensions. No amount of protection in the form of an increase in Tariff Duty, will remedy the innumerable defects which we have found in Indian made mineral water bottles.

We can without any prejudice state that it would not be a business proposition from a financial point to use Indian-made bottles even if the purchase price was about 40 per cent. less than bottles imported from Europe. The breakage and loss from various causes in Indian-made bottles during each filling operation would out-weight any saving in the original cost of purchase.

Moreover it must be taken into consideration that there is more capital sunk in the mineral water and allied trade in India than the Glass Industry and therefore the interest of the former should be duly protected by the Government.

Messrs. Smith Stanistreet & Co., Ltd., Calcutta.

Letter dated the 11th November, 1931.

With reference to the notice in the "Indian Trade Journal" of October 29th, regarding the application of Indian Glass Manufacturers for extra protection we should like to offer the following comments as one of the largest importers of glass bottles:—

- (1) The Indian manufacturer already enjoys protection to the extent of 25 per cent. import duty, and in our opinion further protection in the shape of increased Customs duty would seriously affect the business of all concerns using bottles for their products.
- (2) Owing to the nature of metal and sand available in this country a good quality glass cannot be manufactured. We have examined many samples of Indian bottles manufactured in various parts of India under the direction of Continental exports, but we have not yet come across bottles that we consider good enough for the bottling of our products.

Our protest is only in connection with glass bottles which is the only glass item in which we are interested or have any special knowledge.

Messrs. Edw. Keventer, Calcutta.

Letter dated the 11th November, 1931.

It has come to our notice in the issue of the "Indian Trade Journal" of the 29th October last, that the Association of Indian Glass Manufacturers have applied to the Tariff Board for an extra protection on glass and glass bottles.

We have, as no doubt you are aware, a very considerable number of years experience with Indian-made glass bottles; and we unhesitatingly affirm that every effort made in this country to manufacture glass bottles for our use has resulted in failure. The Government Military Dairies throughout the country can vouch for the same. Special efforts were made to overcome the shortage of imported bottles during the war, but all to no purpose. The country made bottles were utterly useless for our purposes.

There are four main reasons for this which are as follows:—

- (1) Climatic conditions are against the tempering of the glass.
- (2) The necessary quality of metal is not available.
- (3) The necessary quality of sand is not available.
- (4) The necessary quality of water is not available.

At present Indian-made glass of certain types has a protection in *ad valorem* duty of 25 per cent., and on others the Tariff duty is 35 per cent.

This, added to the low price at which Indian-made glass is offered in the market, means that Indian-made glass is about 30 to 35 per cent. below the glass of European manufacture; and 12½ to 15 per cent. below the glass of Japanese manufacture.

If therefore, with so much in favour of the Indian glass manufacturers they cannot satisfactorily supply the demands for the reasons stated, which are insuperable obstacles (as any attempt to import special machinery and plant to overcome them would make the price of bottles prohibitive), we

consider this request for an extra protection is unnecessary, and we desire to protest very strongly against its imposition, as we object to being coerced into paying higher prices for inferior country glass, and equally we object to paying excessively for the superior European imported glass.

Messrs. Byron & Co.

Letter dated the 14th November, 1931.

Re TARIFF PROTECTION FOR THE INDIAN GLASS INDUSTRY.

We beg to take the opportunity to address you, in connection with the application of the Association of Indian Glass Manufacturers to the Tariff Board for extra protection for the industry and the Resolution No. 458-T. (2), dated the 20th October, 1931, of the Government of India in the Department of Commerce, so far as it affects this Company.

As one of the large importers of Mineral Water Bottles, we are of opinion that any further protection against import would be detrimental to the industry. These bottles which should roughly cost Rs. 10 per gross at the source, cost us when imported in our godown nearly Rs. 22 per gross.

We approached several Indian Bottle Manufacturers to supply us, our quality of imported bottles at the above price, which should leave them over 100 per cent. profit, but they have been failing to bring up the standard of quality upto the imported article for various reasons.

The principal among these being want of sufficient capital, with upto date machinery, and skill required for the trade, and unless these factors are remedied, we are afraid the local manufacturers will never be able to produce the standard received from the imported articles.

So we are of opinion that further protection would be of no material benefit to them, but an impediment, to importers of good class materials.

The present type of Mineral Water Bottles with its fine quality is produced after half a century of experience in the glass melting industry which India will require time and patience to obtain.

The bottles manufactured locally are much inferior in every respect to the superfine quality obtainable from England and Germany.

The Mineral Water Trade in India largely depends for its existence on mostly all imported articles, which are all already heavily taxed and further burden would be detrimental to the importers as well as to government revenue.

Messrs. Chas. Granatstein & Co., Calcutta.

(1) *Letter dated the 16th November, 1931.*

It has come to our notice that the Indian Glass Manufacturers have applied to your Board for an extra protection, on glass and glass bottles.

As representatives of European Glass Manufacturers, we crave your indulgence, and thank you in anticipation for sympathetic consideration of our counter charges against the sanctioning of any extra protection.

We, briefly, have to inform you that existing Import Duties are undoubtedly high enough to give ample protection to Indian manufacturers. These duties and the prices, at which Indian manufactured glass is being offered, make their prices very much lower than imported glass.

We utter our humble opinion that it is not a question of protection, but natural obstacles and inefficiency which hinder the success of Indian glass factories. (As an analogy, protection might just as well be asked in Dundee towards fostering the cultivation of jute).

Interested glass consumers have conveyed to us their unbiased and unprejudiced opinion that any increase in Customs duty on glass would be tantamount to coercion.

We hope that you will give us a fair opportunity to further cite facts and views, which, we are sure will receive your fair unbiased consideration.

(2) *Letter dated the 24th November, 1931, from Messrs. Chas. Granatstein & Co., Calcutta.*

REPLY TO QUESTIONNAIRE REGARDING PROTECTION ON INDIAN-MADE GLASS.

1. (a) The keenest competitors in the Indian market are the Japanese.
- (b) Competition is keenest in fancy shaped glass, but generally speaking, prices are substantially higher on imported glass than Indian-made glass.
2. We are not in a position to give accurate figures for the past five years.

The undermentioned prices for European manufactured glass bottles have existed for the past two years or more:—

European Continental Codd's half-white glass bottles.	Japanese Codd's half- white glass bottles.	Indian Codd's half- white glass bottles.
5 ozs. Capacity 35s. 9d. per gross c.i.f.c.i.	Rs. 22/- per gross c.i.f.c.i.	Rs. 18/- per gross f.o.r., Factory.

We might mention that the comparative difference in price per gross from 5 ozs. capacity to 12 ozs. capacity is on the foregoing basis. Codd's bottles over 12 ozs. capacity are not being made in India.

Crown cork mineral water bottles.—For this example, we take the bottle of middle sized capacity as a basis of both up and down from 6 ozs. to 16 ozs. capacity.

European.—12 ozs.—One gross packing 20s. 7d. c.i.f.c.i.

Japanese.—Rs. 12 c.i.f.c.i.

Indian.—Rs. 9 f.o.r., Factory.

It is generally accepted by consumers of mineral water bottles that neither Japanese nor Indian-made bottles will stand the pressure.

We are informed by bigger aerated water manufacturers that it is a danger to use other than European-made bottles in their works.

Bottles as containers for Indian-made spirit and blended liquor.

Half-white glass.

European.	Japanese.	Indian.
	Rs. A.	Rs.
Quarts, 28s. 4d. (an allowance of 1s. 6d. per gross if more than 300 gross are ordered at a time)	17 0	15
Pints, 22s. 7d.	12 0	10
Nips, 19s. 7d.	10 8	8

10 per cent. extra for pure white glass of European origin. Nothing extra for the others.

Most of these bottles of Japanese or Indian manufacture are, generally speaking, condemned by the Commissioner of Excise of each respective Province, as they are not uniform in their containing power; i.e., in Bengal, the minimum Quart is 22 ozs., filling height, half-brimful, minimum pint 11 ozs. half-brimful. Bottles of European manufacture do not vary more

than 0.3 per cent. At least, this is the guarantee from our manufacturers, who are in Czecho-Slovakia and Germany. Bottles of Indian and Japanese make will vary from $\frac{1}{2}$ oz. to $1\frac{1}{2}$ ozs. in capacity; while the glass is not so presentable as the glass of European origin.

Medicine Phials.

Half-white glass.

	European.	Japanese.	Indian.
		Rs. A.	Rs. A.
		(Duty paid.)	
4 ozs. capacity 9s. 4d. c.i.f.c.i. (without charges)		4 8	2 12
6 ozs. capacity 11s. 3d. c.i.f.c.i. (without charges)		5 8	3 12
8 ozs. capacity 14s. 6d. c.i.f.c.i. (without charges)		6 8	4 12

European glass 10 per cent. extra if in pure white. Nothing extra for the others.

The above mentioned European prices are from our works, c.i.f.c.i., without duty and landing charges. The Japanese prices are all charges paid. The Indian prices are *ex-dealers' godown*.

In the case of the medicine phials, accuracy in capacity is essential, while, also a presentable quality of glass is wanted by better class chemists.

It is a fact that the only glass manufactured to satisfy these requirements, is of European origin.

The Customs duty on glass bottles other than mineral water bottles is 20 per cent. *plus* 25 per cent. of the 20 per cent. *ad valorem*. The mineral water bottles have a tariff duty, which equals about 35 per cent. *ad valorem*. Landing and clearing charges can be assessed on an average of 3 per cent.

We do not know the freight rate from European to Indian ports.

3. This question can be answered by the foregoing.

4. (a) Freight on empty bottles from Calcutta to Cawnpore is about Re. 1 per maund, which would mean about Rs. 3-8 per gross of 12 ozs. Cods bottles. Inland Indian glass manufacturers have the very least, in their favour, Railway freight charges from the nearest port.

(b) Freight is charged on gross weight. The average ratio between net weight and gross weight in the packing of imported bottles, either in crates or in bales will be about 15 per cent.

5. The freight on a gross of 12 ozs. Cods (as cited above) from the nearest port, Calcutta to Cawnpore, is Rs. 3-8 per gross, from the nearest glass factory to Cawnpore, it is about Rs. 1-2 per gross.

6. Without bias or prejudice, Indian glassware is extremely inferior in quality to imported glassware. It does not command the same price. In fact, consumers, who are particular, never consider the Indian-made glass at any price. Indian-made glass of the existing quality can be produced profitably at the prices sold. Imported glass bears a higher price on account of the freight, extra packing, and import duty; but, finds a ready market because of its extremely superior quality.

7. The raw materials used in imported glass are of a special type of sand and chemicals. It is naturally a trade secret what these chemicals consist of; while the sand is a natural asset, particularly in Bohemia and immediate vicinity.

8. There is a difference in the conditions under which Indian glass is manufactured. We are not expert enough to state what the important differences might be.

9. We do not know the exact figures.

10. Indian glass factories, to the best of our knowledge, have not the most modern machinery. The labour is undoubtedly inefficient. Materials may be had. Climatic conditions are against the annealing. Another important factor is the lack of experience, knowledge and technique. The existing freights and Customs duties are all very substantial items in favour of the Indian glass manufacturers.

N.B.—(For the present, another important factor in favour the Indian glass manufacturers is the deflated rate of sterling-exchange against Continental currencies.)

11. We know for a fact that glass of European origin entering India at existing prices is with an average commercial profit.

12. The principal industries, which would be affected by protective duties on glass are:—

Mineral water trade, excise bottling trade, milk dairies, producers of chutneys and condiments for export, the drug and chemical trade.

To what extent, these trades might suffer, depends on what form and what ratio, the protection applied for, might take.

The East India Distilleries and Sugar Factories, Ltd., Madras.

Letter dated the 18th November, 1931.

INDIAN GLASS INDUSTRY.

Our attention has been called to an application from the Indian Glass Industry for extra protection against imported glassware.

As large purchasers of imported bottles we would deprecate such assistance being afforded to the Glass Industry until it has been proved that the Indian production is thoroughly reliable. Our information is to the contrary and that the breakages of Indian-made bottles is out of all proportion to their usefulness.

We are also not aware that Indian factories can produce bottles to guaranteed sizes and we suggest that the industry is at present too immature to warrant protection at the expense of the consumer.

Amritsar Distillery Co., Ltd., Amritsar.

Letter dated the 20th November, 1931.

PROTECTION FOR THE INDIAN GLASS INDUSTRY.

We have received a copy of Resolution No. 458-T. (2), dated the 20th October, 1931, issued by the Secretary to the Government of India, Department of Commerce, New Delhi, from the Punjab Chamber of Commerce, Delhi.

We have carefully read the above resolution and while we have every sympathy with the glass manufacturers' desire to obtain protection we beg to suggest that before we could use Indian-made bottles, no matter what their price might be, we would require some guarantee of quality, and we are of the opinion that it will be some time before Indian manufacturers would be able to supply us with bottles of the type we require.

According to the Punjab Excise Rules and these rules also apply in other provinces of India—in the United Provinces for instance—bottlers of Indian-made spirits have to use bottles of a prescribed pattern having the words "Punjab Excise" and the capacity of same moulded on the bottles. The

bottles required are in three sizes, i.e., 6 to the gallon, 12 to the gallon and 24 to the gallon, and as the bottles contain liquor on which heavy excise duty is to be paid it is most important that they should accurately contain on an average the quantity of liquor they are advertised to hold up to the prescribed rim mark on the neck of the bottle. We are large importers of such bottles and there are also other firms who are importing these bottles. When and until such bottles can be made in India any increase of Customs duty would merely have the effect of raising the cost of bottled spirit to the consumer; in other words it would act like an increase in the excise duty payable on our spirit.

For this reason we would request that if any protection is given to the Indian glass manufacturers on any glasswares at any rate the type of bottles that we use should be excluded.

Messrs. Hajee Ismail Sait & Sons, Ltd., Calcutta.

Letter No. 42/991, dated the 26th November, 1931.

We have the honour to address you in connection with the application of the Association of Indian glass manufacturers to the Tariff Board for an extra protection for that industry in the Resolution No. 458-T. (2), dated the 20th October, 1931, of the Government of India in the Department of Commerce.

In our business as distillers and bottlers of India-made foreign liquor, we use a considerable quantity of glass bottles. These bottles are specially made for us. Each bottle is guaranteed by the manufacturers to have a certain defined capacity as required under the excise regulation of the Provinces in which we operate.

Our experience has been that India-made bottles do not fulfil these conditions and we have therefore been unable to employ them. Nor could Indian manufacturers guarantee that all their bottles would be of exactly the same size, which is most essential to satisfy the Excise Department. Further, the low quality of the glass of which India-made bottles are made results in a very high percentage of breakages.

We presume that extra protection, if granted to the industry, would take the form of an increase in the Tariff duty on imported glass. There is already a heavy duty of 25 per cent. *ad valorem* on imported glass bottles.

In view of the protection already enjoyed by the Indian Glass Industry, and bearing in mind that the industry is incapable of turning out bottles of the high quality required we submit that this industry has no case for protection. Any extra protection will simply amount to companies like ourselves being penalised with no advantage whatever to the Glass Industry as we shall, as heretofore, in order to comply with excise regulations, have to employ the imported article.

Messrs. Dyer, Meakin & Co., Ltd., Solan Brewery.

Letter No. 77/20, dated the 30th November, 1931.

Re PROTECTION TO THE INDIAN GLASS INDUSTRY.

With reference to Resolution No. 453-T. (2) of the 20th October 1931, issued by the Government of India, Department of Commerce, through the Punjab Chamber of Commerce, Protection, if granted, should not cover bottles of standard 26½, 13½ and 6½ ozs. capacities imported by and for distilleries in India under excise regulations (bearing the name of the Province, the word "Excise" and the capacity), because bottles of this type and quality cannot be made in India.

Messrs. Begg Sutherland & Co., Ltd., Cawnpore.*Letter dated the 30th November, 1931.***INDIAN GLASS INDUSTRY.**

We understand that representations have been made to the Government of India by Indian glass manufacturers requesting that protection may be extended to the Glass Industry in India, and Government have decided to refer the matter to the Tariff Board for examination. In this connection we desire you to kindly record our views upon this subject which are as follows:—

(1) That it is evident from our past experience of Indian glass factories that they cannot produce (a) Laboratory glassware of the necessary quality and (b) Spirit bottles white and black to the quality and exact standard required by the Indian Provincial Excise Departments.

(2) That the reasons given for the inability of the Indian factories not being able to produce the two commodities mentioned above are:—

(1) That suitable raw materials—specially sand containing the proper kind of silica—are not available in India.

(2) That suitable machinery and the skilled labour necessary are not yet available in India.

(3) That we use many thousands of spirit bottle annually which we have to import from England, as we cannot obtain them in India of the exact sizes necessary also laboratory glassware for our sugar factory laboratories, and if the import duty of 25 to 35 per cent. is raised it will penalize us in our spirit competition with imported spirits from England and the Continent and also increase the cost to us and to Government of contract country spirits; and further increase our sugar factories laboratory expenditure.

Under these circumstances we are opposed to any further increase in duty as this cannot be warranted on the score of helping the Glass Industry, since if machinery and skilled labour could be installed in due course, the necessary raw materials would have to be imported. If any protection is given it may be for the cheaper and low qualities of glassware which Indian factories are capable of producing but certainly not on the lines mentioned above.

Messrs. Murree Brewery Co., Ltd., Rawalpindi.*Letter No. 1/891, dated the 1st December, 1931.***PROTECTION TO THE GLASS INDUSTRY IN INDIA.**

We have the honour to enclose herewith a copy of a letter we addressed to the Secretary to the Government of India, Department of Commerce, New Delhi, and to inform you that we were instructed to address you on this matter.

Enclosure.

Copy of our letter No. 1/752, dated the 18th November, 1931, to the Secretary to the Government of India, Department of Commerce, New Delhi.

PROTECTION FOR THE INDIAN GLASS INDUSTRY.

With reference to Resolution No. 458-T. (2), dated the 20th October, 1931, we have the honour to state that while we have every sympathy with the Glass Manufacturers' desire to obtain protection, we would like to make the following remarks:—

According to the Punjab Excise Rules we have to use bottles of a standard pattern having the words "Punjab Excise" and the capacity of

the bottles moulded on to the bottles. These standard bottles are of three sizes, and it is important that they should accurately contain on an average the quantity of liquor they are supposed to hold. We along with other Distillers are large importers of these bottles, and until we could get a guarantee that the Indian Manufacturers could produce such bottles satisfactorily, we would be unable to purchase Indian made bottles, no matter what their price might be. At present the price of these standard bottles is big, and if protection was given to the Indian Glass Industry, which protection we would assume would take the form of a tariff on imports, it would mean an increase in the price of these bottles, thereby forcing us to increase our prices for bottled spirits. For these reasons therefore, if any protection is given to the Glass Industry, we would request that the type of bottles indicated above should be excluded.

Messrs., Smith and Wakefield, Calcutta.

Letter dated the 18th December, 1931.

Subject:—SUGGESTED TARIFF ON GLASSWARE.

We note a report in to-days "Statesman" that a Mr. D. N. Sen, Director of the Bengal Glass Works, has put before your Board a proposal for an Import Duty of 50 per cent. on Imported Glassware. We however, although large importers of glassware from England and the continent, are not represented in any of the enquiries by your Board, and therefore desire to record our opinion that such a tariff if put into execution would be extremely detrimental to Glass Importers throughout this country who represent monetarily infinitely more than the very small coterie of glassware manufactures in India, and incidentally would affect in a very adverse manner, the very large buying public.

In addition, we would state that the Indian Glass Industry is by no means anywhere near perfection as regards the manufacture of every day Table Glassware that is now imported in such large quantities to this country. We would therefore ask if you would kindly record our emphatic protest against any further imposition of Customs duties, the last two budgets having already had a very depressing effect on this particular commodity.

Mr. Henry B. Lyon.

Letter dated the 22nd December, 1931.

Subject:—PROTECTION TO GLASS INDUSTRY IN INDIA.

With regard to a proposed protective duty on certain kinds of glassware, the following remarks may prove of interest:—

- (1) I am only interested in buying (imported) glass for the purpose of Leaded Glazing and Stained Glass work, for which it is my "Raw Material".
- (2) The kind of glasses I use, viz., Cathedral, Opalescent and special glasses cannot be manufactured in India, so a duty of any description would simply enhance the cost of my work without being of any benefit to anybody.
- (3) A prohibitive duty, such as is proposed, would probably make the manufactured costs of my work so high that I would have great difficulty in obtaining orders and it would eventually throw myself and 12 men out of employment.

(4) There is already a 25 per cent. Customs duty on imported glass and as I only use glass of British manufacture I consider that the proposed protective duty should not be afforded to any kind of glass used for building work.

Messrs. Ramackers & Co., Ltd., Calcutta.

Letter No. L. 2/SKS, dated the 23rd December, 1931.

The Tariff Board is enquiring into the subject of protection for glass.

I would like to bring to the notice of the Board that I am engaged on a scheme for the erection of an electric bulb factory in India and have every reason to anticipate that it will come to fruition in about 10 months time. For bulbs we shall have to import the glass globes. There is no chance whatever of their being made in India for very many years and we would be much obliged if, in the event of their making, any protectionist recommendations the Tariff Board could bear this fact in mind. These globes are now subject to a duty of 25 per cent. possibly. The gulf which lies between the Tariff Board's desire to protect industries and their reluctance to add to the burden on the consumer might be lessened if a recommendation to a general protection for glass were accompanied by a recommendation for exemption from duty of this particular kind of glass.

**Mr. Kanji Shavji Parekh and others, importers and exporters,
Calcutta.**

Representation dated the 28th January, 1932.

In view of the representations made to the Tariff Board, by the Indian Glass Manufacturers, for a further increase of duty over and above the present allround duty of 25 per cent., we the importers and dealers of foreign glasswares, beg to make the following observations, which we hope your Board will take into consideration:—

We object to the claim made out by Indian Glass Manufacturers on several weighty reasons. In the first place the Indian glass industry is still in a very nascent condition. So much so, that we failed to obtain statistical information regarding the Indian output, from official sources. Our impression that the total output of the Indian manufacturers would barely cover 2 per cent. of the total demand. In contrast, the figures for imports are imposing and are as follows. The latter have been taken from the accounts of Seaborne trade, published every month by the Government of India.

Total value of glasswares imported from the United Kingdom, Germany, Belgium, Austria, Czechoslovakia, Italy, Japan and others, from 1st April to 30th November—

1929.	1930.	1931.
Rs.	Rs.	Rs.
1,70,06,827	1,04,88,300	84,42,603

In our opinion therefore a further increase of duty would penalise a large body of consumers for the benefit of a few producers. In this connection, we would cite paragraph 101 of the Fiscal Commission Report, the concluding portion of which says "Moreover, if protection is extended to an industry before it has begun to produce, or while it is producing a very small portion of the needs of the country, a great and unnecessary burden will be imposed on the consumer". We think that the severity of the burden will be accentuated in this case, as the Indian glass manufacturers not only produce a limited quantity of glasswares but also a limited variety. As an example

of the last, may be cited the case of bottles. Indian manufacturers produce only three kinds of medicine bottles, of 4 ozs., 6 ozs. and 8 ozs. in weight. The imported medicine bottles are on the other hand of numerous varieties. Similar instances can be cited for other lines of glasswares as well.

Our second contention is that there is no effective competition extant, between the articles manufactured by the Indian glass industries and those imported from foreign countries. Indian manufacturers produce as mentioned before only limited varieties and the prices of these are cheaper than corresponding glasswares from foreign countries. To cite a few examples hurricane globes produced by Indian Companies, are selling at Rs. 7 to Rs. 9 per gross, whereas the prices of imported hurricane globes vary between Rs. 16 to Rs. 22 per gross. Imported glass jars are about 25 per cent. to 30 per cent. higher in prices as compared to Indian glass jars. Shades for electric lamps, again, are produced only of a few varieties. Among tablewares may be mentioned the case of tumblers. Indian manufacturers produce mostly blown glass tumblers, and that in the United Provinces and the Punjab only. Hard-pressed glass tumblers are not manufactured at all in India. The prices of Indian blown glass tumblers are 15 per cent. to 30 per cent. lower than foreign articles of the same class. It has already been mentioned that Indian manufacturers only produce stereotyped medicine bottles. It is interesting to note that the varieties manufactured in India are not at all imported. Under the circumstances, we are constrained to doubt the necessity for further protection in India for the glass industry. We beg to emphasise here the trade in glasswares, will cause the prices of indigenous manufactures, to rise disproportionately and the output in India being small, monopolistic conditions would be brought into play, for which the consumers in this case the already hardhit middle classes—will pay the toll.

At this stage we would like to draw your attention to the statements of some Indian manufacturers who have dilated upon the natural advantages of India for the industry. We wish to point out that costs of production have to be analysed and compared as obtaining in India and other countries before it can be ascertained that India has natural advantage for the production of glasswares. If the costs prove to be much higher in India as compared to those of the countries from where glasswares are imported, then clearly according to paragraph 104 of the Fiscal Commission's Report, India, has no natural advantages. We submit that Indian glassware manufacturers have to prove that their costs are cheaper item by item for each class of goods before an all round increase of duty on glasswares can be conceded to them.

We have so long dwelt upon the effect of an increase of duty on consumers. We maintain that, as importers and dealers, we would like to have our interests to be safeguarded. As things stand, we have already suffered considerable curtailment of business. The total value of imported glasswares which amounted to Rs. 8,15,381 in September last year amounted to Rs. 10,09,257 in October but came down to Rs. 6,63,364 in November. Assuming other conditions were the same for September and November, the all round duty of 25 per cent. reduced our imports to nearly 50 per cent. We apprehend that a further increase of duty will very nearly prohibit imports and involve us in heavy loss. The repercussions of an increase of the existing duty will be, in our opinion, over a wider area than if the Indian manufacturers were left in a position of *status quo*.

It is our definite opinion that an increase of duty for revenue purposes will be totally infructuous. We have already pointed out the heavy decline in the total value of glasswares imported in the month of November, 1931, as compared to that of September for the same year. The increase in October may be attributed to the attempt to rush over imports before the new duty could be operative. The November figures clearly indicate that the revenue was lower correspondingly. We have pointed out that a further increase of duty will amount to partial prohibition of imports. We now

say that the Government's revenue will be curtailed still more, if a stronger protective policy is pursued.

Finally, we would request your Board to take into consideration the adverse economic situation in India obtaining at the present moment. We earnestly hope and trust that before coming to any decision regarding an increase of the present duty on imported glasswares, your Board will be guided by the sum total of economic advantages that will accrue to the country by its decisions before further protection is conceded to the Glass Industry.

H. Greenfield, Esq., Director, Grax Ltd., Salt Works, Karachi.

Letter dated the 7th December, 1931.

I have the honour to submit the enclosed Note with 6 copies to the Tariff Board for consideration, and hope it will be of some assistance in their enquiry regarding Protection to the Glass Industry.

Enclosure.

Note on the use of Sodium Sulphate (Na_2SO_4) and Sodium Carbonate (Na_2CO_3) Soda ash in the Glass Industry by H. Greenfield, Esq., Director, Grax, Ltd., Salt Works, Karachi.

I have devoted considerable study to the manufacture of glass. Some years ago a glass factory on a small scale was started in Karachi by some enterprising people but failed. I have often considered the possibility of reviving the industry in Karachi, conditions being very favourable particularly on account of the new salt industry in Karachi and the possibility of developing an alkali industry.

In your letter No. 649, dated the 10th November, 1931, addressed to Grax Ltd., you state "one of the principle materials used in the manufacture of glass is soda ash which at present appears to be largely imported". May I point out that soda ash (sodium carbonate) is not essential in the manufacture of glass, commercial glass, is now manufactured with sodium sulphate (salt cake, Na_2SO_4) as it is much cheaper to produce. The glass industry in Europe and America use sodium sulphate for all commercial glass excepting plate glass, as will be seen from the following formulas:—

(Martin Industrial Chemistry)—

- (1) *Window glass*.—Sand 100 parts, chalk 28 parts, sodium sulphate 42 parts, cullet (broken glass) 100 parts, arsenic acid 1 part, charcoal 3 parts, manganese dioxide $\frac{1}{2}$ part.
- (2) *Plate glass*.—Sand 100 parts, chalk 30 parts, sodium carbonate 32 parts, potassium carbonate 6 parts, cullet 100 parts, manganese dioxide $\frac{1}{2}$ part, nitre 2 parts.
- (3) *Flint glass or crystal*.—Sand 100 parts, potassium carbonate 33 parts, red lead 67 parts, manganese dioxide $\frac{1}{2}$ part, potassium nitrate 7 parts, cullet 100 parts.
- (4) *Baryta glass*.—Sand 100 parts, sodium carbonate 30 parts, barium carbonate 90 parts, red lead 65 parts.
- (5) *Bottle glass (green)*.—Sand 100 parts, sodium sulphate 38 parts, chalk 33 parts, charcoal 2 parts, manganese dioxide $\frac{1}{2}$ part, cullet 50 parts.
- (6) *Bottle glass (brown)*.—Sand 100 parts, sodium sulphate 35 parts, chalk 34 parts, cryolite 10 parts, charcoal 2 parts, manganese dioxide 8 parts, cullet 50 parts.

Sodium carbonate is included in the formulas for plate, and baryta glass, owing to the fact that iron free sodium sulphate is required. It will be

seen later on, that the production of iron free sodium sulphate presents no difficulties nor will the cost of manufacture be excessive, the process being the same as ordinary salt cake manufacture.

I propose to deal with the manufacture of sodium sulphate and sodium carbonate later on, at this stage it is necessary to point out that the production of sodium sulphate is a first stage Leblanc process for the manufacture of sodium carbonate. If protection to the glass industry is given by imposing a duty on sodium carbonate (soda ash) without taking into consideration sodium sulphate, the object would be defeated; salt manufacturers in India would not be justified in taking the risk to lay out considerable capital on plant for the manufacture of soda ash if the door is left open for salt cake or sodium sulphate to be imported, it is therefore essential to impose a duty on sodium carbonate (soda ash) and sodium sulphate (salt-cake) to encourage the establishment of alkali works on a large scale in India, not only to assist the glass industry in which the present enquiry is mainly concerned, but other important industries which will spring up, on account of the valuable by-products obtained in the process, besides, the importance of the alkali industry will give employment to a large number of skilled and unskilled labour. It will not be out of place to mention that soda ash is largely used in the manufacture of soap, the production of soda crystals (washing soda), caustic soda, and as by-products, sulphur, hydrochloric acid, sodium bicarbonate, glaubers salt, sodium hydrogen sulphate, sodium bisulphate, sodium sulphide besides potassium salts, and at a later stage there is nothing to prevent the alkali industry to manufacture chemical fertilizers on a large scale which will be of enormous benefit to agriculture, the Indian textile industry can be supplied with cheap magnesium chloride and bleaching powder thus making the industry independent in case of an emergency.

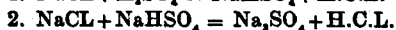
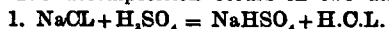
Query No. 1.—To my knowledge no attempts on any considerable scale has been made for the manufacture of soda ash.

Query No. 2.—There is every possibility that salt manufacturers will take up the manufacture of sodium sulphate and sodium carbonate provided sufficient protection is guaranteed to induce manufacturers to invest capital in the venture.

Query No. 3.—The essential materials in the manufacture of soda ash, (by the process I favor for India) is sodium sulphate (salt-cake), the process being fairly simple and does not require such highly skilled labour as the ammonia process, although the output by the latter is greater and cost of production less, I will revert to this point later.

The process for the manufacture of sodium sulphate (Na_2SO_4).

Salt and sulphuric acid is fused, as follows. Ordinary coarse salt is charged into a specially designed furnace with a certain quantity of sulphuric acid. The decomposition occurs in two distinct stages:—



The first reaction begins at ordinary temperatures, whereas the second is completed at red heat the final product is called salt-cake. An average furnace works about 12 charges of about $\frac{1}{2}$ ton each or about 6 tons per day per furnace. Good iron pans will stand several thousand charges. The cast iron must be of the proper composition containing a high percentage of chemically combined carbon but only small amounts of uncombined carbon (graphite) and silica, and of uniform composition throughout otherwise some parts corrode more quickly than others. Iron free sodium sulphate is required for making plate and mirror glass, it used to be manufactured in walled lead pans, this can now be replaced by acid proof rustless steel suitable encased.

Good technical sodium sulphate may contain up to 1 per cent. free H_2SO_4 , 0.1 per cent. Fe, and 0.3–0.5 per cent. NaCl, it must not contain

more than 0.01—0.02 per cent. of iron, and therefore it must be manufactured in a furnace free from iron.

There is also the Hargreaves process for manufacturing sodium sulphate this process dispenses with the sulphuric acid. It depends upon the fact that although pure sulphur dioxide gas (SO_2) of itself does not decompose salt, yet a mixture of SO_2 , air and steam will in time completely convert salt into Na_2SO_4 . The SO_2 reacts with the NaCl to form a little sulphite which is then immediately at a temperature of 500°C . oxidised in the presence of air to sulphate, hydrochloric acid is obtained as a by-product by this process, the evolved gasses is condensed by passing through special condensing towers. This system requires more elaborate machinery and consequently more capital for its installation, besides the process requires about 3 weeks to complete conversion, to sulphate.

To purify technical sulphate, it is dissolved in water after the iron has been precipitated (by the addition of calcium carbonate) the solution is evaporated and allowed to crystallise by natural evaporation, when it separates as glauber's salt ($\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$). Should the crystallisation be carried out by boiling, the sulphate separates out as anhydrous sulphate (Na_2SO_4).

Sodium carbonate can be made by several processes, the Leblanc process is the simplest and requires less expensive plant and skilled labour. The ammonia process on the other hand reduces cost of manufacture but a considerable capital outlay is required for the plant, and highly skilled labour to work the process is essential. Therefore I will give an outline of the Leblanc process only.

100 parts of sodium sulphate (salt-cake), 90-120 of calcium carbonate (in the form of limestone or chalk) and 40-80 of carbon in the form of "Slack" or powdered coal, are heated together in a furnace (it is important that the calcium carbonate should be as pure as possible and that the sodium sulphate (salt-cake) of good quality). The furnace is of the revolving type made of cast iron housed in a brick structure. The usual charge in a furnace of this type is 2 tons of sodium sulphate, 2 tons crushed limestone, 1 ton powdered coal; the process should be carefully watched by workmen with some experience, when it is heated sufficiently long yellowish green flames of carbon monoxide make their appearance, the operation is then complete, the product is discharged into iron trucks which runs beneath the furnace opening, the furnace is recharged immediately, the operation is continuous the product is called black ash.

The black ash requires a lixiviation process, this is done in a series of iron tanks containing water treated with steam, by blowing steam into each tank, maintaining a temperature of about 50°C ., thereby aiding the solution, the black ash solution concentrates as it flows from one tank into another, this process is also continuous.

The saturated black ash liquor can be now worked either for the manufacture of sodium carbonate or for the manufacture of caustic soda. The liquid is allowed to trickle down tall iron towers, where it meets an ascending stream of CO_2 gas and air (CO_2 can be produced by burning lime). (the cost of lime will thus be considerably reduced to the advantage of the building trade in the districts alkali works are established building lime should be very cheap). Burnt gases from furnaces is also rich in CO_2 and may be used for this purpose, in the tower chemical reaction takes place which results in a soda solution, which is passed through filter presses and is again evaporated, at boiling heat the soda crystals which separate out have a formula of Na_2CO_3 , the crystals are removed and heated to be completely dehydrate in pans provided with crushing rollers which run along the bottom of the pan, the product is soda ash containing 98-99 per cent. of Na_2CO_3 , 0.8 per cent. Na_2SO_4 , 0.1 per cent. NaCl , 0.1 per cent. sodium sulphate or sodium thiosulphate with a little insoluble matter.

I am in favour of the Leblanc or Hargreaves process for India to make a start with in the alkali industry as highly skilled labour is not so essential, as in the ammonia soda process, it will take some years for the Indian industry to get the necessary knowledge and training which experience alone can teach in this important industry. The ammonia soda process is elaborate and the very highest skilled labour is required besides the installation is costly, it is true, that by the ammonia process soda ash is much cheaper to produce, and in fact is replacing the older Leblanc process everywhere, but it must be remembered that the great alkali works that have adopted the ammonia system have had years of experience in the industry, and have at their disposal the highest skilled labour, whereas India has to train the personnel. India has many eminent chemical engineers, and with actual experience it should not be difficult to train men engaged in the industry. After having gained a certain amount of experience in the older system, Indian Alkali Works can then adopt the more elaborate ammonia soda process and be in a position to hold its own against outside competition.

The following extract (Martin Salt and Alkali Industry, page 77) will show the importance attached to actual experience in the industry and the secrecy maintained and the value of my suggestion regarding gaining actual experience at the start:—

“It may be said that the ammonia soda process is in the hands of very few firms, and is by them conducted with the greatest secrecy so that those details so essential to commercial success of the process are not known to the general public.”

There is nothing to stop the manufacture of soda ash or sodium sulphate in India, provided sufficient protection is assured to those willing to invest capital in the new industry. It is necessary for the Tariff Board to consider the wider field of the alkali industry, and not only on the merits of the glass industry.

Although the Tariff Board enquiry is mainly concerned with the manufacture of glass at present, it is obvious that the industry cannot succeed unless it is made independent on foreign imports of alkali. During a war if the alkali supplies are stopped, the industry must close down, therefore it is essential to consider the alkali industry that is bound to develop along with the glass industry as both are so closely connected, besides, the salt industry will be able to expand on a very large scale; from salt as parent substance will spring up great alkali works, and India will in time produce sodium sulphate, sodium carbonate, hydrochloric acid, caustic soda, soda crystals, chlorine, hydrogen, bleaching powder and chlorates. Out of these, industries in turn will develop and encourage soap, glass, glycerine, dynamite, and other nitroglycerine explosives, in fact the field is so wide that those interested in the manufacture of salt have for years developed schemes for the establishment of an alkali industry in India.

Messrs. Bird & Co., Calcutta.

(1) Letter No. 697, dated the 19th November, 1931, from the Tariff Board, to Messrs. Bird and Company, Calcutta.

The Indian Tariff Board is at present engaged upon an enquiry into the Glass Industry in India. Since coal forms a very large item in the costs of glass manufacture, I am to ask if you will be good enough to assist the Board by furnishing the following information if available.

The Board wishes to have with regard to the principal classes of Bengal coal an proximate analysis showing (i) fixed carbon content, (ii) volatiles, (iii) moisture, (iv) ash, with remarks as to nature of ash composition, (v) sulphur, (vi) coking properties, (vii) calorific value. The Board would also like to know with reference to each class the current prices (a) at pit's mouth, (b) f.o.r. Calcutta.

I should be grateful for a reply as early as possible and in any case not later than 12th December. The reply together with six spare copies may kindly be addressed to the Secretary, Indian Tariff Board, 1, Council House Street, Calcutta.

(2) *Letter dated the 2nd December, 1931, from Messrs. Bird and Company.*

With reference to your letter No. 697, dated the 19th ultimo, we enclose herewith copies of analyses of the following coals together with six spare copies:—

- (1) *Bhulanbararee Colliery, 14 and 15 seams.*—This is a Selected Grade Coal and is called "Super Jherria", the current price being Rs. 4-12 per ton f.o.r. Colliery. Railway freight from this colliery to Calcutta is Rs. 4-8-6 per ton.
- (2) *Standard Colliery, 14 and 15 seams.*—This is a Selected Grade Coal and is called "Super Jherria", the current price being Rs. 4-12 per ton f.o.r. Colliery. Railway freight from this colliery to Calcutta is Rs. 4-8-6 per ton.
- (3) *Katras Colliery, 13 and 15 seams.*—This is a Grade I, Jherria Coal, and the current price is Rs. 4 per ton f.o.r. Colliery. Railway freight from this colliery to Calcutta is Rs. 4-8-6 per ton.
- (4) *Saltore Colliery, Dishergurh Seam.*—This is a Selected Grade Ranee-gunge Coal, the current price of which is Rs. 5 per ton f.o.r. Colliery. Railway freight from this colliery to Calcutta is Rs. 4-1-6 per ton.
- (5) *Loyabad Colliery, 12, 13 and 14 seams.*—This is a Selected Grade, Jherria Coal, the current price of which is Rs. 4-8 per ton f.o.r. Colliery. Railway freight from this colliery to Calcutta is Rs. 4-8-6 per ton.

We trust this information is what you require, and if there is any other information you want, we shall be pleased to supply you. All railway freights will be increased as from 1st January, by 15 per cent.

Enclosures.

(1)

Analysis of Bhulanbararee Coal.

GOVERNMENT TEST HOUSE, ALIPORE, CALCUTTA.

TEST CERTIFICATE FOR THE BHULANBARAREE COAL CO., LTD.

Managing Agents: Messrs. F. W. HELGERS & Co.

REPORT.

Sample of Coal marked Bhulanbararee 14 Seam Coal.

Moisture	1.55%
Proximate analysis on Dried Sample—	
Volatiles	25.45%
Fixed carbon	62.08%
Ash	12.47%
Nature of coke	Coking.
Colour of ash	White.
Calorific Value on Dried Sample—	
Calories per gram	7,349
Or B. T. U. per lb.	13,228

Register No. 11/O. D., Alipore, Calcutta. }
Dated the 5th June, 1925. }

(Sd.) Supdt.,
Govt. Test House.

GLASS

2 M

(1)

Analysis of Bhulanbararee Coal.

GOVERNMENT TEST HOUSE, ALIPORE, CALCUTTA.

TEST CERTIFICATE FOR THE BHULANBARAREE COAL CO., LTD.

Managing Agents: Messrs. F. W. HEILGERS & Co.

REPORT.

Sample of Coal marked Bhulanbararee 15 Seam Coal.

Moisture	1.85%
Proximate analysis on Dried Sample—	
Volatiles	27.07%
Fixed carbon	62.98%
Ash	9.95%
Nature of coke	Coking.
Colour of ash	Dirty White.
Calorific Value on Dried Sample—	
Calories per gram	7,548
Or B. T. U. per lb.	13,586

Register No. 11/O. D., Alipore, Calcutta. }
 Dated the 5th June, 1925. }

(Sd.) Supdt.,
 Govt. Test House.

(2)

Analysis of Standard Coal.

GOVERNMENT TEST HOUSE, ALIPORE, CALCUTTA.

TEST CERTIFICATE FOR THE STANDARD COAL CO., LTD.

Managing Agents: Messrs. F. W. HEILGERS & Co.

REPORT.

Sample of Coal marked Standard 14 Seam Coal.

Moisture	1.42%
Proximate analysis on Dried Sample—	
Volatiles	25.37%
Fixed carbon	61.16%
Ash	13.47%
	100.00%
Nature of coke	Coking.
Colour of ash	Light pink.
Calorific Value on Dried Sample—	
Calories per gram	7,345
Or B. T. U. per lb.	13,221

Register No. 38/O. D., Alipore, Calcutta. }
 Dated the 28th July, 1925. }

(Sd.) Supdt.,
 Govt. Test House.

(2)

Analysis of Standard Coal.

GOVERNMENT TEST HOUSE, ALIPORE, CALCUTTA.

TEST CERTIFICATE FOR THE STANDARD COAL CO., LTD.

Managing Agents: Messrs. F. W. HEILGERS & Co.

REPORT.

Sample of Coal marked Standard 15 Seam Coal.

Moisture 1.40%

Proximate analysis on Dried Sample—

Volatiles 26.05%

Fixed carbon 61.89%

Ash 12.15%

100.00%

Nature of coke Coking.

Colour of ash Light buff.

Calorific Value on Dried Sample—

Calories per gram 7,302

Or B. T. U. per lb. 13,144

*Register No. 32/O. D., Alipore, Calcutta.**Dated the 17th June, 1925.*

(Sd.) Supdt.,

Govt. Test House.

(3)

Analysis of Katras Yule Pit 13 Seam Coal.

GOVERNMENT TEST HOUSE, ALIPORE, CALCUTTA.

TEST CERTIFICATE FOR THE BURRAKUR COAL CO., LTD.

Managing Agents: Messrs. BIRD & Co.

REPORT.

Sample of Coal marked as Katras Yule Pit 13 Seam.

Moisture 1.24%

Proximate analysis on Dried Sample—

Volatiles 24.59%

Fixed carbon 62.41%

Ash 13.00%

100.00%

Nature of coke Coking.

Colour of ash Dirty White.

Calorific Value on Dried Sample—

Calories per gram 7,404

Or B. T. U. per lb. 13,327

*Register No. 33/O. D., Alipore, Calcutta. }**Dated the 14th August, 1925. }*

(Sd.) Supdt.,

Govt. Test House.

(3)

Analysis of Katras 15 Seam Coal.

GOVERNMENT TEST HOUSE, ALIPORE, CALCUTTA.

TEST CERTIFICATE FOR THE BURRAKUR COAL Co., LTD.

Managing Agents: Messrs. BIRD & Co.

REPORT.

Sample of Coal marked as Katras 15 Seam Coal.

Moisture	0.89%
Proximate analysis on Dried Sample—	
Volatiles	22.50%
Fixed carbon	61.90%
Ash	15.60%
	<hr/> 100.00%
Nature of coke	Coking.
Colour of ash	Grey.
Calorific Value on Dried Sample—	
Calories per gram	7,098
Or B. T. U. per lb.	12,776

Register No. 66/O. D., Alipore, Calcutta. }
 Dated the 13th November, 1925. }

(Sd.) Supdt.,
 Govt. Test House.

(4)

Analysis of Saltore Steam Coal (Disherghur Seam).

GOVERNMENT TEST HOUSE, ALIPORE, CALCUTTA.

TEST CERTIFICATE FOR THE BURRAKUR COAL Co., LTD.

Managing Agents: Messrs. BIRD & Co.

REPORT.

Sample of Coal marked as Saltore Steam Coal (Disherghur Seam).

Moisture	2.45%
Proximate analysis on Dried Sample—	
Volatiles	35.60%
Fixed carbon	52.62%
Ash	11.78%
	<hr/> 100.00%
Nature of coke	Partly coking.
Colour of ash	Light buff.
Calorific Value on Dried Sample—	
Calories per gram	7,185
Or B. T. U. per lb.	12,933

Register No. 18/O. D., Alipore, Calcutta. }
 Dated the 19th June, 1925. }

(Sd.) Supdt.,
 Govt. Test House.

(5)

Analysis of Loyabad No. 4 Pit 12 Seam Coal.

GOVERNMENT TEST HOUSE, ALIPORE, CALCUTTA.

TEST CERTIFICATE FOR THE BURRAKUR COAL CO., LTD.

*Managing Agents: MESSRS. BIRD & Co.*REPORT.*Sample of Coal marked as Loyabad No. 4 Pit 12 Seam Coal.*

Moisture 1.11%

Proximate analysis on Dried Sample—

Volatiles 20.13%

Fixed carbon 63.77%

Ash 16.10%

100.00%

Nature of coke Coking.

Colour of ash Dirty White.

Calorific Value on Dried Sample—

Calories per gram 7,114

Or B. T. U. per lb. 12,805

Register No. 38/O. D., Alipore, Calcutta. }
Dated the 14th August, 1925. }(Sd.) Supdt.,
Govt. Test House.

(5)

Analysis of Loyabad No. 7 Pit 12 Seam Coal.

GOVERNMENT TEST HOUSE, ALIPORE, CALCUTTA.

TEST CERTIFICATE FOR THE BURRAKUR COAL CO., LTD.

*Managing Agents: MESSRS. BIRD & Co.*REPORT.*Sample of Coal marked as Loyabad No. 7 Pit 12 Seam Coal.*

Moisture 0.93%

Proximate analysis on Dried Sample—

Volatiles 20.19%

Fixed carbon 64.93%

Ash 14.88%

100.00%

Nature of coke Coking.

Colour of ash Dirty White.

Calorific Value on Dried Sample—

Calories per gram 7,255

Or B. T. U. per lb. 13,059

Register No. 38/O. D., Alipore, Calcutta. }
Dated the 14th August, 1925. }(Sd.) Supdt.,
Govt. Test House.

(5)

Analysis of Loyabad No. 8 Pit 13 Seam Coal.
GOVERNMENT TEST HOUSE, ALIPORE, CALCUTTA.
TEST CERTIFICATE FOR THE BURRAKUR COAL Co., LTD.
Managing Agents: Messrs. BIRD & Co.

REPORT.

Sample of Coal marked as Loyabad No. 8 Pit 13 Seam Coal.

Moisture	1.03%
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Proximate analysis on Dried Sample—	
Volatiles	20.38%
Fixed carbon	65.84%
Ash	13.78%
	<hr/>
	100.00%
Nature of coke	Coking.
Colour of ash	White.
Calorific Value on Dried Sample—	
Calories per gram	7,323
Or B. T. U. per lb.	13,181
<i>Register No. 38/O. D., Alipore, Calcutta. }</i>	(Sd.) Supdt.,
<i>Dated the 14th August, 1925. }</i>	<i>Govt. Test House.</i>

(5)

Analysis of Loyabad No. 4 Inc. 14 Seam Coal.
GOVERNMENT TEST HOUSE, ALIPORE, CALCUTTA.
TEST CERTIFICATE FOR THE BURRAKUR COAL Co., LTD.
Managing Agents: Messrs. BIRD & Co.

REPORT.

Sample of Coal marked as Loyabad No. 4 Inc. 14 Seam Coal.

Moisture	1.17%
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Proximate analysis on Dried Sample—	
Volatiles	19.02%
Fixed carbon	66.98%
Ash	14.00%
	<hr/>
	100.00%
Nature of coke	Coking.
Colour of ash	Dirty White.
Calorific Value on Dried Sample—	
Calories per gram	7,351
Or B. T. U. per lb.	13,232
<i>Register No. 38/O. D., Alipore, Calcutta. }</i>	(Sd.) Supdt.,
<i>Dated the 14th August, 1925. }</i>	<i>Govt. Test House.</i>

(5)

Analysis of Loyabad No. 8 Pit 14 Seam Coal.

GOVERNMENT TEST HOUSE, ALIPORE, CALCUTTA.

TEST CERTIFICATE FOR THE BURRAKUR COAL CO., LTD.

Managing Agents: Messrs. BIRD & Co.

REPORT.

Sample of Coal marked as Loyabad No. 8 Pit 14 Seam Coal.

Moisture	1.04%
Proximate analysis on Dried Sample—	
Volatiles	20.22%
Fixed carbon	65.82%
Ash	13.86%
	<hr/>
	100.00%
Nature of coke	Coking.
Colour of ash	Dirty (White).
Calorific Value on Dried Sample—	
Calories per gram	7,418
Or B. T. U. per lb.	13,852

*Register No. 38/O. D., Alipore, Calcutta. }
Dated the 14th August, 1925. }*

(Sd.) Supdt.,
Govt. Test House.

Messrs. Burn & Co., Ltd., Calcutta.

(1) *Letter No. 651, dated the 10th November, 1931, from the Tariff Board, to Messrs. Burn & Co., Ltd., Calcutta.*

The Tariff Board is engaged upon an enquiry in to the Glass Industry in India. One of the most important materials required by the industry is fire resisting material for furnaces and crucibles. The Board understands that at present in many cases crucibles are imported by Indian glass manufacturers. I am therefore to say that the Board would be glad to have your opinion as to how far crucibles suitable for the manufacture of the kinds of glass now made in India can be obtained in the country in sufficient quantities. The principal classes of glassware now made in India are lamp globes and funnels, bottles and jars, bangles and sheet or plate glass. I am to ask if you will be good enough to furnish replies to the following questions:—

- (1) Are fire resisting materials manufactured in your works?
- (2) What is the composition of the principal material manufactured?
- (3) For what purposes are they used?
- (4) Where are the raw materials obtained and are there sufficient supplies?
- (5) Do you make crucibles used in the manufacture of glass?
If so, (a) to what extent have you sold crucibles in the past to Indian glass manufacturers, and
(b) how do your crucibles compare in quality and price with imported crucibles?

I am to ask that a reply to this letter, together with 6 spare copies, should be sent as early as possible and not later than 10th December. It should be addressed to the Secretary, Tariff Board, 1, Council House Street, Calcutta.

(2) Letter dated the 25th November, 1931, from Messrs. Burn & Co., Ltd., Calcutta.

With reference to Mr. G. S. Bozman's letter No. 651 of the 10th instant, addressed to our Pottery Works, Jubbulpore, we have pleasure in giving below replies to the questionnaire concerning refractories for furnaces and crucibles:—

1. Yes.
2. Firebricks, blocks, raw and burnt ground fireclay.
3. Glass furnaces, tanks, pots along with the bonding cement for the bricks and blocks used to built the furnace and tanks.
4. Jubbulpore—Yes.
5. No—but we supply the
 - (a) necessary raw materials to make glass pots or crucibles. Our materials are most successfully used by many Glass Works more especially Messrs. The Ganga Glass Works, Balawali, District Bijnor, who obtain from pots made of our materials the best results of any they have used.
 - (b) No—These particulars could be, no doubt, obtained from Messrs. The Ganga Glass Works, Balawali, District Bijnor.

Messrs. Blythe Colour Works, Ltd., Cresswell, England.

Letter dated the 7th October, 1931.

We have pleasure in quoting to-day's approximate prices for the raw materials we sell to India, and hope you will find same of service.

Enclosure.	£ s. d.
Alumina, calcined	28 0 0 per ton.
„ hydrated	18 0 0 „
Antimony oxide	30 0 0 „
Arsenious oxide	25 0 0 „
Barium carbonate	14 0 0 „
Bone ash	18 0 0 „
Borax	13 0 0 „
Boric acid	25 0 0 „
Cadmium sulphide	3 0 0 per lb.
Chromium oxides	1 0 0 „
Cobalt oxide	5 8 0 „
Cupric oxide	65 0 0 per ton.
Cuprous oxide	80 0 0 „
Fluorspar	7 0 0 „
Manganese dioxide	20 0 0 „
Nickel oxide	1 6 0 per lb.
Selenium	9 0 0 „
Uranium oxide	9 0 0 „
Zinc oxide	24 0 0 per ton.
Tin oxides	140 0 0 per ton or £20 per ton above metal price on day order placed.

All c.i.f. Indian port, including packages.

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