

**Report on the Department of Industries, Punjab, for the year ending 31st March 1921.**

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**REPORT**  
ON THE  
**DEPARTMENT OF INDUSTRIES,**  
**PUNJAB,**  
FOR THE YEAR ENDING  
*31st March 1921.*



**Lahore :**  
PRINTED BY THE SUPERINTENDENT GOVERNMENT PRINTING, PUNJAB.  
1921.

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From

E. R. ABBOTT, Esq., C.I.E., I.C.S.,  
*Financial Commissioner, Development, Secretary  
to Government, Punjab,*

To

THE SECRETARY TO THE GOVERNMENT OF  
INDIA, DEPARTMENT OF INDUSTRIES,  
DELHI.

No. 719—20-1, dated 2nd December 1921

SIR,

I AM directed to forward, for the information of the Government of India, a copy of the Annual Report on the Department of Industries in the Punjab for the year ending 31st March 1921, with the review of the Punjab Government (Ministry of Agriculture) thereon.

I have the honour to be,

SIR,

Your most obedient Servant,

E. R. ABBOTT,

*Financial Commissioner, Development,  
Secretary to Government, Punjab.*

*Proceedings of the Punjab Government (Ministry of Agriculture), in the Industries Department, No. 719—20-1, dated the 2nd December 1921.*

READ—

Annual Report of the Department of Industries, Punjab, for the year ending 31st March 1921.

REMARKS.—The report on the Department of Industries for the year 1920-21, the second of the series, deals with a Department still in its infancy, and making rapid growth. In spite of economic conditions unfavourable to existing industries and to new developments, among which may be mentioned uncertain exchange, restricted railway facilities, and shortage of coal supply, progress has been made. The Punjab Government (Ministry of Agriculture) notes with approval that several large factories have been started during the year, and trusts that private enterprise will, with the encouragement which Government is now prepared to afford it, soon take a larger share in this work; in particular that such development will strike out more into new lines like the cement works at Hassan Abdal rather than continue the multiplication of ice, flour and cotton factories with which the province already abounds.

2. The coal shortage has been serious throughout the year, and the future does not at present seem very hopeful. While every effort will be made to secure assistance in this matter for the Province, which does not itself produce much coal of the highest class, it is a matter for consideration whether such a fuel as oil in the local production of which rapid strides have been made, could not to some extent replace coal.

3. While the total expenditure of the Department from its inauguration until the commencement of the year under review was a little over half a lakh, 3·7 lakhs were budgeted for expenditure during 1920-21, almost the whole of which was actually spent. An even greater expenditure is contemplated during the coming years in order to keep pace with the needs of the industrial development of the province. It should be noted, however, that much of the present expenditure was previously incurred through other departments. The appointment of six Industrial Surveyors to travel constantly through the province and keep the Director in touch with local industries was experimentally sanctioned in accordance

with the recommendations of the Industrial Commission. This is, however, a purely tentative measure, and it remains to be seen how they fit in with the organization of the Department, and whether they meet a real need which cannot be met otherwise

4. Although the Department was only able to conduct a small amount of chemical research work for itself during 1920-21, this is a natural concomitant of the fact that the chemical side of industry must await the reaching of an advanced stage by the technical side. Henceforward, however, expansion will be necessary, and it will depend upon the decision of the Government of India regarding the formation of a chemical service for India as a whole whether the expansion will be through such a service or through provincial institutions. Government agrees that the supplying of technical advice and assistance to industrialists in the province is among the most important functions of the Department. Here again, what has been done can only be regarded as experimental. It will be necessary to frame some general rules as to what advice the department can undertake to supply and who will be entitled to it, as soon as the working of the Department can give sufficient practical grounds for framing them; it will then be necessary to secure widespread publicity of the facilities available. At present there are a Mechanical Engineer, a Tanning Superintendent, and a Dyeing Research Assistant, whose services will always be obtainable in cases approved by the Director of Industries. To secure publicity, a provincial "Industrial Bulletin" was started, but lapsed for want of a trained editor. The editor has since been obtained, and Government has sanctioned the re-issue of the Bulletin.

5. The supply of electricity throughout the province has received the special consideration of Government from two standpoints: to ensure adequate supply they have kept in touch with the Engineer-in-charge of the Sutlej Hydro-Electric Project; for its distribution to the more important cities they have been working on a regulated system.

6. Among existing institutions, Government have under consideration the improvement of the Central Museum at Lahore and the Mayo School of Arts. Among newer institutions not only have they opened weaving schools (a central school at Amritsar and four others in Multan, Sialkot, Jalalpur Jattan and Sham Chaurasi), but instruction in the schools has now been put on scientific basis. The District Advisory Boards have worked well during the year, and

Government wishes to thank the gentlemen mentioned by the Director of Industries for their valuable services. The establishment of a central advisory board is now under contemplation. It also wishes to thank Mr. Scott, the Director of Industries, for the energy and keen interest which he has brought to the administration of the new department.

7. In conclusion, they would remark that though the Department has now been organized and is extending its activities as rapidly as the laws of growth will permit, until private enterprise appears to a greater extent than hitherto, no substantial increase in the development of provincial industries is possible. In this connection, they view with satisfaction the efforts of the Attock Oil Co., which it is understood is investing a million sterling in the further development of its oil fields. Such a sum is greater than it would be advisable for a Government, which desires to encourage and not to compete with private industry, to invest in any one undertaking— even were its resources unlimited.

ORDER.—Ordered that a copy of the foregoing review be forwarded to the Director of Industries, Punjab, for information.

Ordered also that the review be published in the *Punjab Gazette*, and be circulated with the report, and copies be sent to the Government of India, Department of Industries.

By order of the Government (Ministry of Agriculture).

HARKISHAN LAL,  
*Minister for Agriculture.*

E. R. ABBOTT,  
*Financial Commissioner, Development, Secretary to Government, Punjab.*



# Report on the Department of Industries, Punjab, for the year ending 31st March 1921.

## REPORT NO. 2.

1. Early in the year 1920 the Director of Industries submitted to the Government a Preliminary Report outlining proposals for the development of Industries in the Punjab. The work done during the year has been carried on as far as time and funds would permit in accordance with the recommendations made in this Preliminary Report, a copy of which is attached as Appendix A.

2. The economic conditions prevailing during the year have been unfavourable both to existing industries and to new developments.

The outstanding difficulties have been the uncertain exchange, restricted railway facilities and the shortage of coal supplies. A certain amount of progress has, however, been made. Among new factories which have been started may be mentioned a large Spinning and Weaving Mill in Amritsar, a Flour Mill at Multan; Two 20-ton Ice Factories at Lahore and one 20-ton Ice Factory at Lyallpur; Flour Mills at Sargodha; Cement Works at Hasan Abdal; Tabloid Factory at Lahore.

3. The railway authorities have assisted the Department of Industries to the best of their abilities, considering the unfavourable conditions under which they themselves are working owing to shortage of funds and material. I will take this opportunity to thank them for the assistance rendered during the year.

4. The coal question is a more serious matter, the difficulties experienced by factory owners have been very serious and are not likely to improve in the future. Assistance was given in numerous cases by writing special letters to the Coal Transportation Officer,

Calcutta, and a fair amount of material assistance resulted, but in many cases the Coal Transportation Officer was unable to assist as the demand for coal was greater than the supply or else sufficient waggons for transport were not forthcoming.

Every effort is being made by the Department to ensure a sufficient coal supply for the immediate future, but the solution of the problem is extremely difficult.

5. The total expenditure through the Department from the date of its inauguration to the 31st March 1920 was Rs.	...	54,989
Expenditure.		
The sanctioned budget expenditure for the year was Rs.	...	3,72,108
The amount actually spent during the year 1920-21 was Rs.	...	3,50,912
Thus the total expenditure through the Department from its inauguration to the 31st March 1921, is Rs.	...	4,05,901

The details of Budget and actual expenditure are shown in Appendix B.

6. The staff employed are detailed below. The majority of them were either engaged during the year or transferred from other Departments to that of Industries:--

<i>Administrative.</i>		Pay.
		Rs.
1 Director of Industries	...	2,000
1 Office Superintendent	...	400
16 Office clerks	...	1,289
<i>Technical.</i>		Rs.
1 Mechanical Engineer (also A. D. I.)	...	1,100
1 Factory Inspector	...	800
1 Assistant Factory Inspector	...	350
1 Boiler Inspector	...	540
1 Assistant Boiler Inspector	...	320
1 Electric Inspector	...	1,100

*Educational.*

	Rs.
1 Principal, Mayo School of Arts ...	1,550
1 Vice-Principal ...	680
1 Assistant Principal ...	425
19 Assistant Masters ...	1,431
1 Head Master, Railway Technical School...	300
9 Assistant Masters ...	461
1 Inspector of Industrial Schools ...	300
1 Tanning Superintendent ...	600
1 Dyeing Master ...	210
1 Research Assistant (Dyeing) ...	75
1 Textile Master ...	300
6 Assistant Textile Masters ...	720

*Intelligence—Commercial and Industrial.*

	Rs.
6 Industrial Surveyors ...	840

7. An insignificant amount of chemical research work has been done by the Department and that chiefly through the courtesy of the Principals of the Government and Forman Christian Colleges, who have permitted the Tannery Superintendent, the Dyeing Master and one of the Industrial Surveyors who is a Master of Science to carry out minor investigations in their laboratories. The question as to whether a departmental chemical research institute is required in the Province is being considered.

8. The supplying of Technical Advice and assistance to Industrialists in the Province is perhaps the most important function of the Department. To organise the machinery to both efficiently and economically fulfil this function, is one of the most difficult problems to be faced, the crux lies in the essential combination of efficiency with economy and the unfortunate fact that at the present time the necessity for economy predominates.

To efficiently provide for this duty it would be expedient:—

- (a) to employ specialists for nearly each industry now being carried on in the Province;
- (b) to be equipped with a library containing the most modern literature, textbooks, catalogues and periodicals which deal with the numerous industries and occupations which exist in the Province;
- (c) to have a research institute where raw materials and products could be examined and tested;
- (d) to make the people acquainted with the fact that the Department of Industries exists for their benefit and is willing to render them all assistance possible.

Endeavours are being made to comply with these essentials of efficiency. During the year the following technical staff has been engaged:—

One Mechanical Engineer, Mr. G. B. D. Head A.M. I.M.E.

One Tanning Superintendent, Mr. C. A. Shinquin, B.Sc.,

One Dyeing Research Assistant, Mr. Girdhari Lal, B.Sc.

9. The Mechanical Engineer has given Technical advice and practical assistance in such cases as have come under his notice. A few examples of the assistance rendered are given below:—

- (1) Adjustment of Rice Hullers so as to avoid excessive breakage of hulled rice, and giving of general information regarding Rice Machinery to mill owners and other enquirers in several localities including Gujranwala, Sialkot, Fazilka and Karnal.
- (2) Pointing out where losses occur in steam plants, resetting of valves on engines, giving of advice on general arrangement of various mills according to each particular case, including those at Bhiwani, Lahore, Lyallpur, Gujranwala, Wazirabad, Ambala and other places.
- (3) Giving of advice on Pumps, Ice Plants, Oil Mills, Flour Mills, Disintegrators, Oil Engines, Mill Gearing, etc., to actual users or prospective buyers

(4) Making of suggestions to certain persons having inventions, including a fibre decorticator and an automatic hand spinning machine at Tarn Taran and Kotli Loharan respectively.

(5) Experiments for the introduction of Rustless steel and Duralumin in the cutlery and instrument trades are being made.

10. The Tanning Superintendent joined his appointment in November 1920, he has given assistance to local tanneries, as will be seen by the short statement which is attached to this report (see Appendix C). The improvement of the tanning industry is receiving the serious consideration of the Department and considerable progress in this line anticipated.

11. The work done by the Dyeing Research Assistant has been chiefly educational, it will be dealt with later in this report under the Dyeing School (para. 28).

12. A library is attached to the office of the Director, containing a certain number of technical books and periodicals, which are gradually being added to. The library is open to the public but is very little used, this is probably due to its inconvenient situation for the class of people it is meant to attract and also to the fact that its existence is not widely known. The matter is under consideration but the required improvements will necessarily take time.

13. That a research institute is necessary both to assist existing industries and to make investigations in the interests of general development cannot be doubted, but in view of more urgent requirements its establishment must be postponed, in the meanwhile arrangements have been made with local laboratories to deal with such cases as arise.

14. In December a departmental paper called the Industria Bulletin was started with a view to distributing useful knowledge to small industrialists who are not in the ordinary course in a position to obtain such information and also to familiarize the people generally with the Department. The Bulletin started well and was appreciated, but it was found impossible to keep it up to the

required standard without a competent editor who could not be obtained on the salary offered, its issue was, therefore, temporarily suspended. It is proposed to restart it shortly with a better staff.

15. The following certificates of approval, prospecting and mining leases, were granted or extended during the year :—

Mines.

Certificates of approval	...	...	14
Prospecting Licenses	...	...	16
Mining Leases	...	...	1

The Attock Oil Company found oil in considerable quantities at Khaur in the Attock District, the oil will be piped to Rawalpindi a distance of about 40 miles and there refined. Their refinery in Rawalpindi is progressing satisfactorily and it is hoped that it will be in operation by December 1921.

Oil has not been found in any other locality up-to-date, but a considerable amount of prospecting and trial boring are in hand.

16. In September a concession was granted to a syndicate to generate electric power from certain falls on the Upper Jhelum and Upper Chenab Canals. As these two canals are never closed simultaneously it is possible, by connecting up the power stations on each, to ensure a continual supply. The syndicate is at present engaged in making further investigations.

Special concessions.

One other application was received making inquiries as to the feasibility of generating electric power from falls on the Jamna Canal in the vicinity of Bhutinda it was sent on to the Chief Engineer, Irrigation Department, for disposal.

Four applications for concessions to manufacture cement from limestone located in Government property are under consideration.

17. The only cottage industries which it has been possible to assist are those of hand loom weaving and dyeing.

Cottage industries.

Schools for teaching weaving and dyeing are established, they are referred to in paragraphs 27 and 28 of this report.

Four and-a-half tons of Alizarine Dyes were distributed to Cottage Dyers at cost price during the year, the amount of money involved exceeded Rs. 14,000.

18. For the purpose of collecting commercial and industrial information six Industrial Surveyors and one Naib-Tahsildar were appointed, during the latter half of the year. Special tabulated forms have been drawn up in which the Surveyors recorded the details of each commercial and industrial concern in their districts. The information thus collected is collated and classified in the office. Progress has been necessarily slow owing chiefly to the inexperience both of the Surveyors and the office collecting staff, but matters are improving and with time and experience this organisation should prove successful. The distribution of commercial intelligence can most satisfactorily be done through a departmental publication; an attempt was made through the Punjab Industrial Bulletin, it is hoped that the re-organised and better staffed Bulletin will attain the object in view.

19. It has not been possible to organise markets for local industries to any appreciable extent. Whenever opportunity offers manufacturers have been recommended and introduced to Controllers of Stores of the North-Western Railway and of Textiles and Contracts of the Government of India with the result that a certain amount of business has been done. This avenue for local manufacturers will undoubtedly improve when the Indian Stores Department, recommended by the Government of India, both for Imperial and Provincial supplies, comes into being. In this connection more could be done if Local Government purchasing officers could work through the Department of Industries.

With the idea of establishing local and foreign markets an exhibition gallery has been started in Lahore, where manufacturers are invited to display their goods. This gallery is at present in its infancy and not anything like fully equipped with show cases, stands, containers, etc, but some business has resulted.

Mr. Morton, representing a large firm of General Dealers in England, visited the Punjab during the winter. The local Industrial Surveyor was deputed to assist him in his inquiries with the result that he deposited at the Sales Gallery a sum of Rs. 1,500 with which samples of certain local manufactures were to be bought and sent to his firm in England.

In November a fairly large consignment of articles were sent from this gallery to the British Industries Fair held in London in February with satisfactory results. Articles to the value of £ 500 were sold and orders to the value of £ 1,000 were booked. This, as a first effort, is promising, and if judiciously handled may result in permanent business relations between Punjabi manufacturers of certain articles and dealers in England.

10. Two special minor enquiries have been carried out by the Department during the year. One was to assist the Engineer-in-charge of the Sutlej Hydro-Electric Project to form some idea of the possible power likely to be requisitioned at the present time and to estimate future requirement over a limited number of years. The other was in connection with information required by the Communication Board, Punjab as to the amount of river traffic at present existing in the Punjab. These inquiries were fairly satisfactorily executed by Industrial Surveyors, considering the difficulties of the inquiries and the novelty of this type of investigation. The Industrial Survey of the Province is being gradually completed by the Industrial Surveyors under the guidance of the Assistant Director of Industries.

21. The Punjab sent exhibits to the British Industries Fair held in February 1921. The result was satisfactory. A separate detailed report has been submitted to Government.

The Department took part in local fairs held in Moga and Muktsar. Fly shuttle looms were exhibited at these fairs and competitions in weaving were arranged. The Mayo School of Arts also took part in exhibiting plaster casts and actual moulding in clay and plaster of Paris which excited considerable interest. No special Industrial Exhibition was arranged by the Department during the year.

22. The Central Museum in Lahore is under the charge of a Curator who works under the direction of a Museum Committee. A special report on its working will be submitted by the Curator. The establishment of a small arts and crafts museum at Amritsar is under consideration, it is hoped to start it during the coming year.



23. The administration of Technical and Industrial Education was transferred to this Department in September. There are 19 technical or industrial schools in the Punjab controlled by the Department as shewn in the statement below:—

Name of school	Locality.	Number of male students	Number of female students	Expenditure.	REMARKS.
1. Mayo School of Arts ..	Lahore ..	183	...	Rs. 60,312	† This includes Rs 12,995-14-1 on account of expenditure on contingencies out of which— Rs. 1,692-1-2 was recovered and credited into treasury on account of sale-proceeds of manufactured goods. Rs. 920-1-9 worth manufactured cloth in hand on 31st March 1921 Rs. 8,432-5-3 spent on equipment and raw-materials in stock
2. Railway Technical School.	Do. ...	276	...	•	
3. Zenara School ...	Do. ...	...	22	Included in expenditure against items 15-19.	
4. Dyeing School ...	Do ...	54	...	Rs 7,770	
5. Victoria Diamond Jubilee Hindu Technical Institute	Do ..	67	..	Government's grant to this institution is Rs 3,600 per annum.	
6. District Board Industrial School.	Kasur ...	100	...	•	
7. Ditto ditto ...	Lyallpur	49	...	•	
8. Ditto ditto ...	Ludhiana...	87	..	•	
9. Ditto ditto ..	Ferozepore	162	..	•	
10. Ditto ditto ...	Dera Ghazi Khan	79	...	•	
11. Dito ditto ...	Rohtak ...	102	...	•	
12. Municipal Board Industrial School.	Amritsar .	191	...	•	
13. Ditto ditto ..	Multan .	140	...	•	
14. Ditto ditto ...	Delhi ...	166	...	•	
15. Central Weaving School.	Amritsar ...	23	...	•	
16. Weaving School ...	Multan	23	...	•	
17. Ditto ...	Sialkot	13	..	† Rs. 34,021 includes expenditure on (3)	
18. Ditto ...	Sham Churasi	9	..		
19. Ditto ...	Jalalpur Jattan.	13	...		

\*Not available (at time of printing).

## 24. Condensed reports on the 1st, 3rd and 4th institutions

Mayo School of Arts,  
Railway Technical School,  
Dyeing School and Zenana  
School.

on the list are given in Appendix D, E and

F.

25. An annual grant-in-aid of Rs. 3,600 was made to the Victoria Diamond Jubilee Hindu Technical Institute. This school has been working under a disadvantage during a greater part of the year as the Head Master resigned; the Committee of Management were unable to replace him till December. It is also unfortunate that Rai Bahadur Ganga Ram, C.I.E., who was largely instrumental in establishing this school and was for many years the energetic and generous President of the Managing Committee found it necessary to resign the post of President. The Committee of Management applied during the year for an increased grant-in-aid, which is being considered.

26. The nine Industrial Schools established by district boards and municipalities deserve encouragement. All these Industrial Schools suffer from the lack of three essentials, *viz.*, teachers, suitable accommodation and equipment. The special committee appointed by His Honour the Lieutenant-Governor in 1912 reported to the same effect and though some improvement has taken place since that date it is not nearly enough.

The following extracts from the report of the Commissioners appointed by the New South Wales Government in 1905 to report on technical education emphasises the necessity of the right type of teachers :—

“The employment of mere tradesmen as teachers is unsatisfactory and is everywhere discountenanced. Every instructor, whether in the lecture room, the laboratory, or the workshop should be an educationalist, *i.e.*, a student of the theory of pedagogy and a teacher and not merely an operator or workman.”

“In every country difficulty has, of course, been experienced in obtaining such a class of teachers at the initial stages of technical education, and even when directed by a technological expert the beginnings are far from satisfactory for this reason. This will explain, in part, the unsatisfactory character of technical education in this State.”

“ It is worth recording that the work done under primary teachers who have given manual instruction, often betrays its limitations when compared with that done under properly trained instructors. Pick up the chisels and tools of the pupils of the novice in manual instruction and you find them imperfectly sharpened. Look at the postures of the boys at work, and you recognise the defective hygiene, for the physiology of the question has not been studied. Take notice of the benches, and you see that while the ingenuity of the teacher, restricted as he has been, is admirable, yet he has tolerated what the qualified instructor would not allow. Look at the gradation of the Exercises and one sees at a glance their crudity as compared with the Sloyd proper. Often the hard-working, self-sacrificing and enthusiastic instructor is quite unconscious of his limitations. He gets results often gratifying, but not such results as are obtained by the properly trained teacher.”

The last criticism was applied by the Commissioners to the Industrial School of New South Wales in 1905, and may be applied with equal force to the majority of the Industrial Schools in the Punjab to-day.

In the majority of cases the buildings in which Industrial Schools are located are unsuitable and the accommodation inadequate. The Director of Public Instruction in his annual report on education for the year 1919-20 draws attention to this defect (see Chapter II, paragraphs 6 and 7).

The equipment, machinery and tools in the Industrial Schools require improvement, this defect is probably due to the inexperience of the teachers and to limited funds available for expenditure.

The whole question of technical and industrial education is receiving the attention of the Department in consultation with the Standing Committee on Technical and Industrial Education. Special recommendations in this connection will be submitted to the Government during the coming year.

27. Five weaving schools have been established in the Province. One central school is situated in Amritsar where instruction is given to artizans and their sons and also to a limited number of the more educated classes who may wish to either set up small factories of their own or qualify as foremen in private factories. The remaining four schools are established in Multan, Sialkot, Jalalpur Jattan.

Weaving Schools.

and Sham Churasi, they admit only the sons of artizans or weavers.

All these schools are progressing satisfactorily though they have not been in existence long. The Sham Churasi school was started in February 1920. After nine months' training 9 students were examined and qualified. Four of them have been engaged in small weaving factories on pay of Rs. 40 to 50 a month and the other are working fly-shuttle looms in their homes. The following list shows the number of students under training on the 31st March 1921—

Central Weaving School, Amritsar :—

Higher class ... ..	15
Artizan „ ... ..	8
District Weaving School, Sialkot ...	13
„ „ „ Multan ...	23
„ „ „ Jalalpur Jattar	13
„ „ „ Sham Churasi...	11
Total ...	<u>83</u>

The expenditure and accounts of the weaving schools is shewn in Appendix B.

28. The Dyeing School is still being carried on in the Industrial Branch of the Forman Christian College. The number of students during the year was 54. A detail report on the working of this institution appears in Appendix F.

The expenses of the Dyeing School are shown in Appendix B.

29. The Standing Committee on Technical and Industrial Education met 5 times, during the year, this Committee is composed of the following members :—

Standing Committee on  
Technical and Industrial  
Education

- (1) E. A. Scott, Esq., Director of Industries, Punjab, Chairman.
- (2) The Hon'ble Sir H. J. Maynard, Financial Commissioner, Punjab, Member.
- (3) A. S. Montgomery, Esq., Chief Engineer, Public Works Department (Buildings and Roads Branch), Punjab, Member.

- (4) Colonel W. T. Wright, Director of Public Instruction, Punjab, Member.
- (5) J. H. Smellie, Esq, Loco Motive Superintendent, North-Western Railway, Member.
- (6) H. J. Charlton, Esq, Carriage and Wagon Superintendent, North-Western Railway, Member.
- (7) Rai Bahadur Lal Ganga Ram, C.I.E, M.V.O., Lahore, Member.
- (8) Mian Asmat-ullah, Factory owner, Lahore, Member.
- (9) Lionel Heath, Esq., Principal, Mayo School of Arts, Secretary.

30. A great part of the time of this Committee was taken up in considering proposals, plans, estimates and details in connection with the proposed college for training Mechanical Engineers in Moghulpura. The work of erecting the buildings required for this institution is now in hand and is making fair progress.

31. A site for the proposed Carpentry School to be established in Jullundur has been acquired. Plans and estimates for the necessary buildings are in hand.

32. Five scholarships of Rs. 12 each were sanctioned for 5 Punjabi students who were being trained in the Madras Leather Institute and an additional sum of Rs. 250 per mensem was sanctioned as stipends to students for the purpose of training them in the tanning industry in local tanneries under the supervision of the Tanning Superintendent. The question of establishing a regular institute for teaching the tanning industry in the Province is under consideration.

33. The administration of the Electricity Act was transferred from the Public Works Department, Buildings and Roads Branch, to the Department of Industries in September 1920. Public-utility Electric Installations exist in Lahore and Amritsar.

During the year licenses were granted for the supply of electricity to Rawalpindi and Lyallpur and applications for licenses were received to establish installations in Multan, Jullundur, Gujranwala, Sialkot and Ferozepore. These applications are being considered and it is hoped that some of them will

mature during the coming year. The Electric Inspector examined preliminary projects for supplying the towns of Abohar and Fazilka with electricity and also drew up a preliminary project for the town of Hissar.

The importance and advantages of establishing Electric Installations in towns are being gradually recognised and considerable progress may be expected during the next few years.

Mr. Eastgate, Electrical Inspector, resigned in February, he was relieved of his duties by Mr. Milne.

34. The administration under the Boiler Act was transferred from the Public Works Department, Buildings and Roads Branch, to the Department of Industries in February 1921.

Inspection under the Boiler Act.

The report of the Steam Boiler Inspector is attached (see Appendix G).

35. The work under the Factory Act increased considerably during the year owing to the revised rules whereby a larger number of factories came under the Act. In July the Department suffered a serious loss through the untimely death of Mr. Taffs, the Factory Inspector. His post remained vacant till December when Mr. Abel was appointed. In March 1921 an Assistant Factory Inspector was appointed to cope with the additional work. A report on the working under the Act has been submitted to the Government.

Factory Act.

36. District Advisory Boards of Industries were appointed during the latter half of the year for Lahore, Amritsar and Ludhiana Districts. A certain number of meetings have taken place at which numerous subjects were discussed. It has not been found necessary to hold these board meetings at regular intervals, as was at first proposed. Meetings are called whenever any question of general policy is to be discussed, or when any action is contemplated which would effect the district concerned.

Advisory Boards.

37. Administrative approval was given during the year to the establishment of a Boot and Shoe Factory and a Dyeing Factory. At both these establishments special arrangements will be made for training artizans.

Pioneer Factories.

It will not be possible to start the Boot Factory during the coming year as the manufacturers intimated that they were-

unable to supply the machinery owing to the large number of previous orders in hand, it is hoped that they will be in a position to meet our demands during the following year.

A budget grant of Rs. 75,000 was made for the Dyeing Factory. Arrangements for the purchase of the land are in hand.

38. No loans were made to either large or cottage industries during the year. Legislation and rules under which such loans may be made are under consideration.

Loans.

39. The reference to the necessity of improved transport facilities made in the preliminary report on the development of Industries in the Punjab (see Appendix A) was considered by the Provincial Communications Board. It was decided to appoint Engineers to investigate the possibilities of agricultural tramways and inland water transport. An Engineer was accordingly appointed in December to investigate the question of agricultural tramways under the control of the Director of Industries; during the winter he surveyed four areas where it was considered light railways were required. The preliminary reports submitted by him are satisfactory, he is at present drawing up detailed reports and estimates.

Transport.

It was not possible during the year to obtain the services of a suitable Engineer to investigate the possibilities of inland water transport, it is hoped that this difficulty will be overcome during the coming year.

40. Special thanks are due to the members of the District and Advisory Boards, mentioned below for their valuable assistance and keen interest in the work, during the year—

- (1) Lala Harkishan Lal, Bar.-at-Law, Lahore.
- (2) Lala Mulk Raj Bhalla, Punjab Co-operative Bank, Lahore.
- (3) Mr. Owen Roberts of Messrs. Clement Robson & Co.
- (4) M. Allah Din, Proprietor, the Shahdara Tannery, Lahore.
- (5) S. Mehr Singh Chowla, Proprietor, Punjab Glass Works, Lahore.
- (6) Mr. Mitchell, National Bank of India, Amritsar.
- (7) Lala Rattan Chand, Tea Merchant, Amritsar.

- (8) Khan Bahadur Sheikh Ghulam Sadiq, Carpet Factory Owner, Amritsar.
- (9) B. Nizam-ud-Din, Proprietor, the Amritsar Tannery, Amritsar.
- (10) Lala Faqir Chand of Messrs. Devi Chand-Durga Das, Piecegoods Merchants.
- (11) Lala Sri Krishan Das, M.Sc., S.O., Ludhiana.
- (12) Lala Shiv Prashad, Treasurer, Banker, Proprietor, Ice Factory and Flour Mills, Honorary Magistrate, Manager, Arya School and Swadeshi Cloth Merchant, Ludhiana.
- (13) Diwan Ram Saran Das, Banker, Ludhiana.
- (14) Mr. G. M. Chowdry, Contractor, Ludhiana.
- (15) K. Mahmud Shah, Contractor, Ludhiana.

E. A. SCOTT,

*Director of Industries, Punjab.*



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## APPENDIX A.

### PRELIMINARY REPORT ON THE DEVELOPMENT OF INDUSTRIES IN THE PUNJAB.

1. *General*.—To meet the needs of gradual development to provisions are essential ; they must precede such development.

These are transport facilities and technical education. Special notes on these two subjects are given in paras. 2 and 3.

Regarding development, the Department will undertake :—

The improvement and extension of existing industries, *e g.*, cotton, silk and wool weaving, leather tanning and manufacture, book binding, wood work, iron work and cutlery, silk production, tin work, glass and soap manufacture, oil milling, dyeing, chemicals, etc.

The introduction and encouragement of those industries which after investigation are considered necessary or likely to prove successful, *e g.*, paper and match factories, ceramics, caustic soda and chlorine from salt mines, etc.

Proposals as to how each of the above noted industries are to be dealt with are given below and will be carried out as funds permit ; *see* paras. 4 to 18.

According to the Industrial Committee's report to which the Local Government have generally agreed the Industries Department will be responsible for—

- (1) Industrial research work.
- (2) Technical advice and assistance to industrialists.
- (3) Examination of applications for special concessions.
- (4) Grant of loans and generally assisting small and cottage industries.
- (5) The collection and distribution of commercial and industrial intelligence.
- (6) Government indents and purchasing and inspecting of certain Government stores
- (7) Organisation of markets for local products.
- (8) Conduct of special enquiries and industrial surveys.
- (9) Holding of industrial exhibitions.
- (10) Management of industrial and commercial museums.
- (11) Control of technical and industrial education.
- (12) Control of staff employed in administration of the Electricity Factory and Boiler Acts.

- (13) Agricultural engineering, including the demonstration to agriculturists of small power plants.
- (14) Direction of a board or boards of industries.
- (15) Collecting statistics of production and employment.
- (16) To compile and comment on railway statistics
- (17) To compile, publish and comment on the production, carriage and labour employed in mines.
- (18) To initiate pioneer and demonstration factories
- (19) To register joint stock companies.
- (20) Loans and subsidies to large industrial concerns

It is obvious that these responsibilities cannot be efficiently undertaken by the staff, office and executive, at present existing in the Industries Department.

It is also clear that suitable office accommodation is necessary.

Proposals as to how these matters are to be dealt with follow; see paras 19 to 39.

2. *Facilities for traffic* — It is generally recognised that facilities for transport are essential to and must precede the development of industries. I have stated in para. 1 that the development of industries on a large scale must be preceded by (i) facilities for traffic and (ii) Technical education; of the two I consider the former the more important from the Government point of view, because technical education can be arranged for privately without the aid of Government, but the development of transportation facilities depend entirely on Government initiative.

The Indian Industrial Committee recognised the fact in the third paragraph of their report where they say, relative to the industrial backwardness of India. "The coming of the railway and the steamship... have brought about great changes." Notwithstanding having admitted the great importance of easy transport at the beginning of their report the Committee do not refer to it in Chapter V where they discuss the industrial deficiencies of India and its causes. In para 279, however, they report 'we feel justified, however, in saying that the Government of India should take up the question of improving the existing waterways, as we cannot help thinking that in the absence of a representative especially charged with its interests, the vested interests of Railways have prevented waterways in India from receiving that attention that has been given to them in other large countries with such satisfactory results.'

In my written evidence before the Industrial Commission in December 1917, I said;

"In the Punjab, which is eminently naturally suited to water transport comparatively little exists and that is certainly not encouraged.

"This matter should be specially investigated.

"River and canal transport should be increased to a maximum. The Punjab offers special facilities for water transport which would be cheaper and

in some cases quicker than rail. The majority of experts and investigators of industrial development consider transportation facilities as the very foundation of industrial prosperity.

The following table taken from 'The causes and extent of industrial progress of Germany' by E D Howard, illustrates the truth of the importance of transportation facilities :—

“Comparative statement of length of Railways.

	1870.	1887	1903.
	Miles.	Miles.	Miles.
“ Great Britain ...	15,000	19,000	22,000
“ Germany ...	11,000	24,000	32,000
“ America (United States) ...	53,000	156,000	898,000

“By comparing this table with the history of industrial development in Germany and America it will be seen that the extension of railways preceded, and did not follow, the rapid development of industries in the last two countries named.

“I would therefore suggest—

“(i) that money be found for the railway already projected in the Punjab ;

“(ii) that special officers be deputed by Government to report on what other railways are considered necessary, and that matter be not left to enterprising company promoters ;

“(iii) that a special Committee be appointed to report on the feasibility of waterways for facilitating transportation.”

Since writing the above I have further investigated the subject and am convinced that my suggestion deserves careful consideration. The Commission on Inland Waterways appointed in England reported “numerous industrial establishments have settled on German waterways ; and that Agricultural Co-operative Associations have established stores on them for the collection and distribution of goods. Cheapening the transport of coal and other low value traffic has increased the trade, industry and wealth of Germany and indirectly the revenue derived by railways from passenger traffic and higher class goods. Had it not been for the improvement of waterways, it would have been necessary to spend more money on railways and sidings.”

The German canals are being adopted for 600 ton barges while those in France are making provision for 300 ton barges. In both countries the inland traffic by waterways is increasing much faster than that by railways. In France inland waterways are open to all, the freight being one farthing a mile. In Germany only interest on capital is paid, any balance being used to reduce the capital—so that in course of time transport, so far as use of the waterways is concerned, will be free.

In view of the extensive Hydro-Electric Schemes contemplated for the Punjab—when electric power will be available for electric haulage on canals and to work the lifts which are likely to supersede locks—it is very advisable

that the question of seriously investigating the possibilities of the Punjab waterways be considered. It being always borne in mind that slow transit in water consumes less energy than any sort of traffic on land.

The canal authorities are generally opposed to letting their canals be utilised for transport. I have talked to many canal officials on the subject—their general objections are:—(i) that this transport does not pay, (ii) that canals have to be closed periodically, (iii) no locks exist and enough headway has not been allowed at their bridges, (iv) restriction of waterway, the silt difficulty and damage to banks.

Regarding (i) non-payment. This is not a source from which they should expect revenue, the maintenance of an army does not pay but it is necessary for the preservation and safety of the country and people, so with water transport facilities, they may not pay (they probably would if organised), but they are necessary for the prosperity and contentedness of the country and people.

Regarding objections (ii) and (iii), they are minor matters, entailing no doubt considerable expense on existing canals but otherwise easy of solution.

Regarding (iv) the restriction to waterway is small and probably only acts when the barge goes upstream. It could be minimised in existing canals by regulating traffic and the type of barge used, on new canals by giving slightly larger waterway. As far as silt deposit is concerned this could be controlled by providing special tying up places and rules of working; the damage to banks would of course occur, but is not a serious consideration.

New canals should all be designed to be used as waterways, in their case the additional expenditure incurred would be comparatively small; on this subject the Government should issue orders at once, as I understand many schemes for new canals are under preparation.

Regarding the three suggestions made by me in my evidence before the Industrial Commission, they still hold good with some modifications:—

(i) That money be found for railways already projected in the Punjab.

This is a matter of Provincial interest and therefore the Local Government should have a say commensurate with this interest. At present these questions are to a too large extent decided by the Railway Board—which, although it does undoubtedly consider the representations of the Local Government, considers them with those of other Local Governments, which are more advanced in Commerce and Industry than the Punjab. The factors on which the Railway Board decide whether a non-strategic railway is to be constructed or not depend on the money available and the prospects of the line paying, the result is that backward commercial and industrial provinces are neglected.

My contention is that the material prosperity of a province depends largely on its means of transportation, which should precede and not follow industrial development; under the present system which governs the construction of new railways, the Punjab is likely to continue to suffer.

The system must therefore be changed—Local Governments must raise funds for their own railway construction and having done this will decide as to the spending of money raised by them (1) in building those railways which

are most necessary and (2) in deciding the standard to which the railway will be built. This second point is important as I shall endeavour to show below :—

It has been customary in the past in the Punjab for the parent line to either build or have a directing say in the construction of new branches, this does not lead to economy. The parent line has fixed standards and types for their station buildings, quarters, yards, etc, which though necessary for established railways are more than are actually necessary for new branches.

It is no true economy to locate a line which is likely to develop with steep gradients and sharp curves, but all other outlays which belong to a first class railway may well be avoided on branch lines till they develop.

A single line with no ballast, no fencing, huts for station building and minimum accommodation for staff could be built at moderate cost per mile. The trains need only run during daylight and the staff at each station consist of one Station Master and two or three menials. But these things cannot be done under the present arrangement, as the parent line which undertakes to work the branch for the Company, enters into an agreement whereby it has to work the line and is responsible for certain expenditure, which would be large if the line were not built to a standard, they therefore insist on a standard higher than is necessary in the first instance. The working expenses are higher than necessary, two or three station masters are kept at stations and generally the standard and number of staff approximate to that obtaining on the main line. Nor does the branch railway receive the personal attention necessary to make a new undertaking a success since it only forms a small part of the work entrusted to the various District Officers. An actual example would better illustrate the situation. The construction estimate of the Mandra-Bhon Railway, excluding engine and rolling stock amounted to Rs 29,49,715 including the following items :—

	Rs
1. Fencing .. .. .	5,488
2. Mile and gradient posts ... ..	8,466
3. Ballast ... ..	4,85,336
4. Points and crossing ... ..	17,799
5. Stations and buildings . . . . .	3,59,961

Of the above items 1, 2 and 3 are not essential, 4 could probably be reduced by half and 5 could be reduced to about Rs. 1,59,961.

The saving thus affected in capital cost would be Rs. 7,03,389.

The interest earned by this Railway on Capital last year was 3.15%. The same total amount would have been earned if the line had been more economically built and the interest on Capital would have been 4.14% instead of 3.15%.

All I have said may not apply in each detail to Mandra-Bhon Railway, but it illustrates my meaning.

To my mind the most satisfactory way of running a feeder railway is on the system adopted by the Saharanpur-Delhi-Shahdra Railway; one man is Agent, Chief Engineer, Loco-Superintendent and Traffic Manager. He has

the interest of his line at heart, and exerts every effort to make it successful; to further increase his interest he should be given free shares in the Company or a percentage on the net earnings.

If projected railways were constructed and worked on the lines suggested the prospects of reasonable dividends would improve and it would therefore be easier to get Companies to undertake them.

The parent line may be asked to work them or not, as circumstances dictate, but the parent line would give them rebates on goods brought to the parent line.

(ii) That special officers be deputed by Government to report on what other railways are considered necessary and that the matter be not left to company promoters.

I would now suggest that the Punjab Government depute an officer to study this matter chiefly for those areas where light 2' or 2'-6" railways and tramways and roads are necessary or require improvement

(iii) That a special Committee be appointed to report on the feasibility of waterways for facilitating transport.

This suggestion requires modification; in place of a Committee a special officer should be deputed for the work whose proposals would from time to time be considered by the existing Communications Board of the Punjab. I have earlier in this note pointed out the importance of waterways, this officer should be appointed at once.

If the proposal be accepted, I have in my mind an Engineer who would be eminently suited for the work and whose services I have reason to believe could be secured almost immediately. The two officers should work under the direction of the Industries Department, because for the time being this Department is most interested in the development of transport facilities, furthermore the Roads and Buildings Department already complain of overwork and the Canal Department are so prejudiced against their canals being used as waterways that the proposals would probably not mature.

All that can be put forward in the interest of Industries for the provision of transport facilities applies with equal if not more force to development of Agriculture in the Province, with a resulting reduction in the price of food-stuffs.

3. *Technical Education.*—The Punjab Government have not yet decided whether Technical Education is to be administered by the Department of Education or Industries.

It is very important that the matter should be settled as early as possible. The Technical Institute for training Mechanical Engineers at Moghalpura and the wood work school at Jullundur have practically been approved of and it is essential that the Department which is to administer them should take charge during the initial stages.

The question as to which of these two Departments should take Executive charge of Technical and Industrial Education has been discussed at length by the Industries Committee who decided that it should be administered by the Department of Industries. My own opinion is in agree-

ment with the recommendation of the Industries Committee. In the United Provinces and Central Provinces Technical Education is under the Director of Industries.

As the organisation for Technical Education will take time, it is very necessary that decision of the Punjab Government should be expedited.

4. *Weaving*.—The last census of 1911 reports on the Punjab regarding Textiles :—

“ Next to the works connected with dress and toilet the textile industries are the most important in the Province and over a million people depend on them.

“ The number of persons classed under each of the groups included under the order ‘textiles’ is noted in the margin—cotton weaving and sizing is out-and-out the largest.”

The central weaving school in Lahore will be abolished and re-established either in Hoshiarpur or Jullundur. It will be the head-quarters of the weaving expert. Arrangements for accommodation in either Hoshiarpur or Jullundur are in hand. Detailed report will be sent later.

At present a Hosiery and Zenana section is attached to the Government Central Weavery. It is proposed to abolish, for the present, the Hosiery section for men and to transfer the Zenana section to the Cambridge Mission; this mission will be given a grant-in-aid to teach women of all classes and creeds hosiery and other useful work.

Later on, it is hoped to start a polytechnic for Indian women. An experienced lady Principal will be engaged for this work, who will take over the work which I now propose to be done temporarily by the Cambridge Mission.

To improve the methods of this Industry I propose to employ one good weaving expert with as many assistants as I can obtain to a limit of six. These assistants will set up looms and appliances in different weaving centres, and remain there helping and teaching the weavers till such time as improved methods are firmly established, this time will vary from 6 to 18 months. It is proposed to appoint one of these assistants to improve the weaving in jails as suggested by His Honour Sir Edward Maclagan. These assistants will be supervised and frequently inspected by the weaving expert. Expert weavers, capable of instruction are very hard to obtain so are suitable assistants. I must be in a position to engage these men as soon as I find them, if they are capable they will remain otherwise they will be dismissed; for this purpose and for the setting up of the temporary schools I must be allowed to draw on the lump sum sanctioned for Industries without having to apply for special sanction in each case.

I have at present sent the textile expert to Hoshiarpur District which has the largest weaving population in the Punjab. As I obtain more weaving assistants the schools will be extended.

Wool weaving will be taken up in Kangra and Panipat and Silk weaving in all schools.

For the wool weaving, as has been found necessary in the Central Provinces, we shall probably have to set up a wool cleaning combing and



spinning factory, as the established woollen mills do not part with any but the inferior worsted, which they consider unsuitable for the manufacture of cloth.

5. *Leather Industry.*—The raw hides and skins of the Punjab are said to be the best in India. These are at present largely exported. The tanning industry has never been organised or instructed, with the result that the hides and skins tanned in the Punjab are worse than those of any other Province. To remove this defect the engagement of a competent tanning expert is necessary. I do not think in the first instance it will be necessary to put up a Government experimental tannery. It will be sufficient for the expert to start on the existing tanneries, he will devote himself to one or two at a time in turn for periods of 6 to 12 months. I shall enter into agreement with each tannery as it is dealt with. Generally my idea is to arrange for a satisfactory supply of tanning material and give such assistance as may be considered necessary or possible.

Regarding the manufacture of special leather, e.g., stamped and coloured leathers such as are used for upholstery, book-binding, etc., and for leather goods, e.g., boots, shoes, bags, harness, etc., I propose, setting up a model leather work factory. To this factory will be attached a leather research laboratory for experimental purposes and to exploit local tan-stuffs. At present the indigenous tan-stuff, Kikar bark is being exported in large quantities to other Provinces to the disadvantage of the local tanners, some action is necessary to control this export and also to obtain from the Forest and Canal Departments some concession for the Kikar bark in their lands.

6. *Book-binding.*—A considerable amount of this is done in the larger towns of the Punjab, but the work is generally very inferior. An inspection will be made of the more important of these undertakings and such steps as are considered necessary will then be taken.

7. *Wood, Iron, Tin and Copper work.*—This will be taught in the Technical Schools, which I hope will be gradually established at various centres in the Punjab.

8. *Cutting.*—The workmen about Sialkot have already attained a certain efficiency in this line. In conjunction with the Registrar of Co-operative Societies it is proposed to try and improve their work, by enquiring into their difficulties and arranging for the supply of good steel at reasonable rates and by giving them samples of high class work to copy.

9. *Silk production and Sericulture.*—The fostering of this most promising industry is at present under the Director of Agriculture. The Industrial Commission in their report in paragraph 258 remark: "The indigenous methods of silk reeling are crude and there is a case for the establishment of central factories to deal with cocoons."

In paragraph 5 of Appendix (†) to their report they say: "In each locality where sericulture is largely pursued a special officer will be needed to supervise such work and he should be attached to the local Department of Agriculture."

It seems to me that the whole of this important and promising industry should be under one department. The Government should therefore decide this matter as its development is a slow matter and the sooner action is taken the better.

10. *Glass manufacture*—There are two glass factories now in the Punjab, but they have practically no modern appliances, their activities are chiefly confined to the manufacture of inferior chimneys only, because they can successfully make nothing else.

The United Provinces are arranging for a glass expert, but as I have said in my general report on my inspection of the industries of this Province (see my letter No. 610, dated 27th March 1927) such a man is probably unobtainable. I propose, if possible, to arrange with the United Provinces Government to share experts as far as this industry is concerned.

11 *Oil extraction*.—Several oil presses exist in the Punjab—none of them are very flourishing—being an agricultural Province where large quantities of oil seeds are produced this should not be the case.

It is proposed by the Industries Commission to appoint specialists to investigate this industry. We can, I think, in this particular await their action.

Meanwhile I think the cultivation of castor oil plant should be encouraged. The Agricultural, Forest, Canal and Railway Departments should be asked what they are or propose doing in this matter—the last two departments have great opportunities of planting trees on the sides of their canals and railway. The plant will, I understand, grow nearly everywhere in the Punjab without much attention. A special officer should be deputed for this work and the conservation of Kikar plantations and other local tan-stuffs.

12. *Soap manufacture*.—Soap by the cold process is manufactured in nearly every town in the Punjab—the process is very simple but the results are not good, the soap retains a disagreeable odour. The more enterprising of these manufacturers are considering setting up modern plant and to utilise the hot process of manufacture, every help possible will be given them.

13 *Dyeing*.—The instruction in dyeing to artisans, weavers and B. Sc. students is at present being carried out in the Forman Christian College by Mr. Khosla, A M S. I., 1st Class Honours in Dyeing and Medalist, who is an official of the Industries Department.

The work done and the number of individuals instructed has been satisfactory, but the space which can be spared for the work by the College is limited, consequently the school is not sufficiently equipped. To meet the difficulty and to train a larger number of individuals than is at present possible, it is proposed to set up a model dyeing and dry-cleaning factory fully equipped, where large numbers can be trained and which will be at least partially self-supporting by taking in orders from the public. The matter is being discussed with the Principal of the Forman Christian College and definite proposals will be submitted.

14 *Chemicals*.—A certain number of factories exist in Lahore and Amritsar for the manufacture of sulphuric and nitric acid and other chemical products. They suffer at present from want of expert advice and organisation. These factories at present have no difficulty in disposing of their products, but they will in future unless assistance in the shape of advice is not forthcoming. A high class chemical adviser is necessary together with a local research institute of which he will be in charge. But any action in this matter must be deferred till the Chemical Services Committee publish their report.

Regarding the introduction of new industries in the Punjab—

15. *Paper*.—Negotiations are now in hand for a paper factory.

16. *Match manufacture* should be possible but requires further investigation, this is probably a case in which Government will have to set up a model factory which will be handed over to private enterprise when successful.

17. *Caustic Soda and Chlorine* by the electric process should succeed when the electric power is available.

18. *Ceramics*.—Suitable clay is available near Delhi and I understand a European firm is investigating the matter—action in the Punjab will depend to a large extent on the results of this investigation

Regarding responsibilities of Industries Department—

19. *Industrial Research Work*.—I think an industrial research institute should be established in the Punjab. The question of generally tackling this problem is receiving the attention of the Government of India who have appointed a Chemical-Services Commission to report. Until this report is published it is not advisable to make any suggestions for the Punjab.

20. *Technical advice and assistance to Industrialists*.—This requirement will be automatically met when the Department expands and specialists are obtained for the more important industries but at present an Industrial Engineer is necessary to inspect and advise existing factories, a surveyor to make surveys of proposed sites and a draftsman to make drawings of proposed schemes

21. *Examination of applications for special concessions*—Now that a Department of Industries has been formed, the present system for granting exploring and mining licenses should be revised. The applications should, in the first instance, be made to the Director of Industries and the whole transaction completed in his office. The Commissioners and Deputy Commissioners would be consulted by the Director of Industries and would be kept informed of any action taken by him. The advantage of this would be that all information on this subject would be available in Director of Industries' Office, from which the public could get information.

22. *Grant of loans to, and generally, assisting small and cottage industries*.—This will be discussed at the Conference of Directors of Industries in Simla and suggestions submitted subsequently.

23. *Collection and Distribution of Commercial and Industrial Intelligence*—This will be a very important branch of the work. To collect the information I proposed appointing six industrial surveyors. They will not be gazetted officers and the pay will depend on their qualifications. The necessity for these will be more apparent when it is considered that besides doing this work they will have to make industrial surveys, organise markets for local products and collect statistics of Production and Employment.

24. *Government Indents, purchasing and inspecting certain classes of Government stores*.—This will depend on the report of the Stores Purchase Committee.

25. *Organisation of market for local products.*—This will be worked in conjunction with the Registrar of Co-operative Societies as far as cottage industries are concerned—it will probably entail some expenditure in the first instance till the methods and standard of the work of cottage workers is improved.

Regarding other local products of non-cottage industries a lot will depend on the report of the "Stores Purchase Committee." Government requirements will to a certain extent be met by local producers. The Industries Department will assist in establishing markets by advertisements and in special cases by granting subsidies to general merchants. The Industrial surveyors will also help in this matter

26. *Conducting of Special Inquiries and Industrial Surveys.*—Action will depend on the special inquiry concerned. The Imperial Department of Industries will probably be able to supply experts; or else the Local Government will take action as in the case of the cement expert now working for us. Industrial surveys, will be undertaken by the same staff who collect Commercial and Industrial intelligence, see para 23 above

27. *Holding of Industrial Exhibitions.*—Special Industrial Exhibitions will be held and encouraged as opportunity offers. It is proposed to establish a permanent exhibition in Lahore—where all the industries in the Punjab will have a place,—prices, places of manufacture, quantity of outturn, etc., will be indicated—raw materials obtainable in the Punjab with useful information, as to origin probable cost of working, transport and power facilities and uses will be available.

It is proposed in the first instance to start this exhibition in the hall in the Lahore Museum—but it will eventually be provided for as an annex to the library and office of the Industries Department. The museum is not the right place for this sort of exhibition, it is a cabinet for curiosities of the past, the industries exhibit on should show commercial articles of the present and possibilities of the future. The undertaking will entail considerable expenditure in fittings and staff of which details will be submitted in due course, if approved.

28. *Management of Industrial and Commercial Museums.*—This has been dealt with in the above para. Besides the proposals for Lahore, a Commercial Museum will be started in Amritsar, where I understand the Municipal Committee have a very suitable building which was given to them for this purpose by a public-spirited philanthropist. Inquiries regarding this are in hand.

29. *Control of Technical and Industrial Education.*—The decision of the Government on this matter is awaited.

30. *Control of staff employed in the Administration of the Electricity, Factory and Boiler Acts.—Electricity.*—The Officer-in-charge of this is at present under the Chief Engineer, Buildings and Roads. I understand that in addition to administering the Electricity Act he is also an executive officer in the Department for maintaining and advising on Government installations. One proposal is that he should remain under the Chief Engineer for these executive functions and work under the Industries Department as far as administering the Act is concerned. I do not consider this arrangement will prove

satisfactory or business-like. The officer must be under one Department and that the Department of Industries his advice on Electric and other problems with which the Industries Department will have to deal will be invaluable; as to the executive duties he now performs they can be done as easily as an officer of the Industries Department as of the Public Works Department

In consideration of the extra work he will do in the Industries Department his pay should be increased

*Factories.*—This officer already exists and is working in the Industries Department Owing to the increase in his work of administering the Act and other industrial duties he will be called upon to undertake, it will be necessary to provide him with an assistant

*Boilers.*—The Boiler Inspector is at present under the Public Works Department. Orders for his transfer to Industries Department are necessary.

31. *Agricultural Engineering including the demonstration to Agriculturists of small power plants.*—This is at present administered by the Agricultural Department. The reasons why this branch should be put under the Department of Industries are given in para 307 of the Industrial Commission Report. I certainly think these engineers would be given a wider scope for their abilities and be more fully employed under the Industries Department. The Industries Department will have to employ engineers to set up and work machinery for small sugar plants, wool cleaning and spinning machinery and to generally advise the owners of existing factories. It would be false economy to duplicate these appointments. It is, however, a matter for Government to decide.

32. *Direction of a Board or Boards of Industries.*—It is not proposed in the first instance to appoint a Central Advisory Board, but to establish District Boards, starting with the most industrial centres such as Lahore, Amritsar, Sialkot, Ambala, Multan. These District Boards will be composed of men actually engaged in industries in their districts, from them will be elected a chairman, the Director of Industries being President. The secretary of these District Boards will be an Industrial Surveyor of the Industries Department posted in the District. The duty of these Boards will be to investigate, report on and make suggestions for the industries of their districts, their meetings will be, as far as possible, regular.

The members of these Boards will be entitled to travelling expenses if any are incurred for attending meetings

When these Boards have been fairly established, a Central Board will be formed, one or more members being appointed, from each District Board. By this means it is hoped that the industrial requirements of the whole Province will be well and fairly represented

33. *Collecting Statistics of Production and Employment.*—This will be part of the duties of the District Industrial Surveyor, as far as minor industries and those industries which do not come under the Factory Act are concerned. The Factory Inspector will supply the required information for those factories which come under the Act.

34. *To complete, and comment on Railway Statistics.*—The system now adopted by the railway of recording statistics has recently been greatly improved. Monthly statistics can, I understand, now be published shortly after the completion of each month—these will be obtained from the Railway authorities. The commenting on the statistics will be done by the Director of Industries.

35. *To compile, publish and comment on the production, carriage and labour employed on the production of minerals.*—The material for this is at present supplied to the Director of Industries by the Deputy Commissioners. This procedure will for the present continue. The compiling, publishing and commenting on will be done by the Director of Industries.

36. *To initiate Pioneer and Demonstration Factories.*—This will be done as opportunity offers. For the present it is proposed to establish model leather work and dyeing factories and possibly obtain an oil-engine-driven sugar plant as has been set up in the Gurdaspur Model Farm and set it up in the vicinity of Sonapat or Panipat for the next sugarcane crop. This last suggestion emanated from Mr. Calvert, Registrar of Co-operative Societies—he considers that he could get one of the Societies in that District to purchase such sugar plants. His suggestion is being investigated. Inquiries are also being put in hand for a wool cleaning, combing and spinning plant to be erected in the vicinity of Fazilka. This locality was suggested by Mr. Calvert, who thinks that by putting up this machinery the Societies in that District would be greatly assisted.

37. *Registering Joint Stock Companies.*—This work will shortly be taken over by the Industries Department.

38. *Loans and Subsidies to large Industries.*—This subject is to be discussed at the meeting of Directors of Industries in Simla. Proposals will subsequently be submitted.

39. *Staff.*—Regarding executive staff proposals have been made in the sub-heads of this report and are summarised in the forwarding letter.

In so far as office staff is concerned, I have consulted Mr. Haseltine, C.I.E., who has lately been employed in re-organising various Government Offices.

It is proposed to have one Office Assistant as recommended in Industrial Commission Report, para 318, eight heads-of-section clerks and four assistant clerks. The duties of the Assistant would be to supervise the heads of sections, deal with routine office work and be generally responsible for the efficient working of the office.

The heads-of-section clerks would each be in complete charge of a section, they would be responsible for their own filing, recording and despatching. The four junior clerks will, two of whom will be typewriters, act as under studies to the sectional heads and generally help.

A statement showing how the work of these sectional heads will be distributed is given below :—

*Section Clerk.*

*Duties.*

To deal with cases connected with :—

- |   |   |
|---|---|
| 1. Librarian and Ledger Section                   | 1. Technical advice and assistance to industrialists.   |
| 2. Joint Stock Companies and Concessions Section. | { 1. The examination of applications for special concessions<br>{ 2. Registration of Joint Stock Companies.   |
| 3. Commercial and Intelligence Section.           | { 1. The collection and distribution of commercial and industrial intelligence.<br>{ 2. The collection of statistics of production and employment.<br>{ 3. The compilation of railway statistics.<br>{ 4. The compilation, publication and report on the production, carriage and labour employed in mines.   |
| 4. Stores Section                                 | { 1. Government indents and purchasing and inspecting certain Government stores.<br>{ 2. Organisation of markets for local products.  |
| 5. Industrial Survey Section                      | { 1. The conduct of special inquiries and industrial surveys.<br>{ 2. Holding of industrial exhibitions<br>{ 3. Management of industrial and commercial museums.  |
| 6. Technical Education Section                    | 1. Control of technical and industrial education.   |
| 7. Accounts Section                               | { 1. Grant of loans and generally assisting small and cottage industries<br>{ 2. Loans and subsidies to large industrial concerns<br>{ 3. All other accounts of office  |
| 8. General Section                                | { 1. Industrial research work.<br>{ 2. Control of staff employed in administration of the Electricity, Factory and Boiler Act.<br>{ 3. Agricultural engineering, including the demonstration to agriculturists of small power plants<br>{ 4. Direction of a board or boards of industries.<br>{ 5. To initiate Pioneer and demonstrative factories. |

*Office Accommodation.*—This question is referred to in paragraph 338 of Industrial Commissions Report. The office is at present accommodated in Richard's old building on the proposed site for the new Secretariat. When the new Secretariat is started this building will be demolished. It is proposed that a separate office be erected for the Industries Department. The Chief Engineer has informed me that a suitable site exists in the area acquired for the new Secretariat. It is proposed that the Director of Industries may be authorised to ask Chief Engineer to make plans and estimates for the office of Industries Department.

E A. SCOTT,

*Director of Industries, Punjab.*

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**APPENDIX B.**

Serial No.	Details.	Budget allotment, 1920-21.		Expenditure, 1920-21.		Budget grant, 1921-22.	
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1	<b>OFFICE OF DIRECTOR OF INDUSTRIES.</b>						
	Director of Industries ...	34,000 0 0		23,022 0 0		12,000 0 0	
	Deputy Director of Industries ...						
	Establishment ...	11,000 0 0		11,899 8 11		21,960 0 0	
	Temporary Establishment ...	...		945 2 4		2,400 0 0	
	Travelling Allowance ...	5,000 0 0		2,929 4 9		5,000 0 0	
	Contract Contingencies ...	9,000 0 0		8,460 0 1		5,000 0 0	
	Other Contingencies ...						
	War and Travelling Allowances ...	...		2,207 5 0		...	
	Grain Compensation Allowance ...	100 0 0		284 0 10		...	
	Hill Allowance ...	...		...		400 0 0	
	Lahore Allowance ...	...		...		1,700 0 0	
	<b>Total Office of Director of Industries</b>	<b>59,100 0 0</b>	<b>59,100 0 0</b>	<b>55,216 14 8</b>	<b>55,216 14 8</b>	<b>80,100 0 0</b>	<b>80,100 0 0</b>

2	WEAVING AND ZENANA INDUSTRIAL SCHOOLS								
	Establishment	...	} 28,000 0 0		14,676 15 11		28,296 0 0		
	Allowances	...				2,628 2 3		6,000 0 0	
	Stipends	...				3,723 8 6		15,120 0 0	
	Contingencies	...				*12,993 14 1		10,000 0 0	
	Total Weaving and Zenana Industrial Schools.		28,000 0 0	28,000 0 0	34,020 8 9	*34,020 8 9	59,416 0 0	59,416 0 0	
3	DYEING SCHOOL, LAHORE.								
	Establishment	...	} 8,000 0 0		3,690 3 7		5,328 0 0		
	Allowance	...				404 8 6		744 0 0	
	Stipends	...				1,853 14 9		3,840 0 0	
	Contingencies	...				1,816 3 9		6,628 0 0	
	Total Dyeing School		8,000 0 0	8,000 0 0	7,769 14 7	7,769 14 7	16,540 0 0	16,540 0 0	
4	SERICULTURE.								
	Mulberry Expert	...	...		2,854 13 6		...		
	Minor Establishment	...	...		...		2,852 0 0		
	Travelling Allowance	...	...		986 13 6		1,000 0 0		
	Contingencies	...	...		2,089 3 6		3,000 0 0		
	Total Sericulture		...	..	5,430 14 6	*5,430 14 6	6,652 0 0	6,652 0 0	
	Carried over		95,100 0 0	95,100 0 0	1,02,438 4 6	1,02,438 4 6	1,62,708 0 0	1,62,708 0 0	

\* Out of this expenditure—

Rs. 1,692 1 was recovered and credited into treasury on account of sale-proceeds of manufactured goods.

Rs. 920 1 9 worth manufactured cloth in hand on 31st March 1921.

Rs. 8,432 5 3 spent on equipment and raw materials in stock.

**APPENDIX B—CONCLUDED.**

Serial No.	Details.	Budget allotment, 1920-21.		Expenditure, 1920-21.		Budget grant, 1921-22.	
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
	Brought forward ...	95,100 0 0	95,100 0 0	1,02,438 4 6	1,02,438 4 6	1,62,708 0 0	1,62,708 0 0
5	<b>TANNING.</b>						
	Establishment ...	...		8,667 4 0		8,563 0 0	
	Allowances ...	...		1,083 2 0		2,032 0 0	
	Contingencies ...	...		138 4 0		2,500 0 0	
	<b>Total Tanning ...</b>	...	..	4,888 10 0	*4,888 10 0	13,100 0 0	13,100 0 0
6	<b>INDUSTRIAL ADVISORY BOARDS.</b>						
	Establishment ...	...		5,759 3 6		12,523 0 0	
	Allowances ..	...		2,888 15 9		12,132 0 0	
	Contingencies ...	...		1,383 9 1		7,200 0 0	
	<b>Total Industrial Advisory Boards ...</b>	...	..	10,031 12 4	*10,031 12 4	31,860 0 0	31,860 0 0

7	Lump provision for Weaving Central Co-operative Stores.	...	...	...	...	3,132 0 0	3,132 0 0
8	Ditto ditto	1,008 0 0	†1,008 0 0	...	...	1,080 0 0	1,080 0 0
9	Lump provision for the Punjab Industrial Bulletin.	...	...	3,618 12 0	*3,618 12 0	10,000 0 0	10,000 0 0
10	Model Dyeing Schools and Factory ..	...	...	...	...	75,000 0 0	75,000 0 0
11	British Industrial Fair, London ..	...	..	5,198 10 6	*5,198 10 6	10,000 0 0	10,000 0 0
12	Arts and Crafts Exhibition in the Central Museum, Lahore and Amritsar.	...	...	6,181 13 8	*6,181 13 8	10,000 0 0	10,000 0 0
13	Punjab Technical College, Moghalpura.	2,00,000 0 0	2,00,000 0 0	1,97,732 5 4	1,97,732 5 4	2,10,000 0 0	2,10,000 0 0
14	Lump provision for encouragement of Industries.	50,000 0 0	†50,000 0 0	...	...	50,000 0 0	50,000 0 0
15	Provincialization of State Scholarship	...	...	...	...	6,300 0 0	6,300 0 0
16	Other charges in connection with encouragement of Industries.	16,000 0 0	†16,000 0 0	9,448 11 4	*9,448 11 4	10,320 0 0	10,320 0 0
17	Lump provision for temporary appointment of a Cement Expert.	10,000 0 0	†10,000 0 0	370 4 6	*370 4 6	...	...
GRAND TOTAL		...	3,72,108 0 0	...	3,39,904 4 2 † 11,008 0 0	...	5,93,500 0 0

3,51,912 4 2

\* † Expenditure under \* passed against grant of †.

† Booked by Accountant-General, Punjab.

## APPENDIX C.

No. A-25, dated Lahore, 25th May 1921.

From—C. A. SHINQUIN, Esq., B.Sc., Superintendent of Tanneries, Punjab,  
To—The Director of Industries, Punjab

I HAVE the honour to submit the report on the work covered by the Tannery Superintendent for the year ending April 30th, 1921.

1. Previous to my joining the Department of Industries I spent some time in America visiting the Tanneries in the East as well as a large number of boot and shoe factories. All of these plants were completely equipped with latest machines and the management highly organised. Costs, time studies, routing wage scales, recreation, functional control, all were the outstanding features of the better shops. I also obtained plans for construction of an extract plant and several of the largest Middle West tanners outlined their idea of a small model tannery. At the McElwain plant I saw the model conveyor boot shop installed by the United Shoe Machinery Co. (August 1920). The methods and principles of the above plants can be used, with slight modifications, but not without skilled labour and thorough supervision.

2. After my arrival in India in November and taking over office, I visited the larger tanneries in the Punjab, or those plants which had machinery. Apparently none of these plants were built with the idea of saving time and labour, it being necessary to carry the hides over the same ground several times. The power was distributed along one main shafting which required all machines to be grouped in one line. The machines were not well cared for, and as long as they would turn they were used. A little care would add years to the life of the machine and properly adjusted the results would be far better. The larger tanneries have not proper drainage facilities and the smaller plants have no drainage at all which is the chief reason for the unpleasant odor attached to a tannery. Tannery waste of other descriptions is not disposed of but arrangements are being made whereby some of this waste can be utilized. Spent lime can be used as fertilizer, hide trimmings for gelatine and fleshings for glue stock. Hair is also valuable.

Of the Desi tanneries only a few are well operated. Generally there is no roof over the lime-pits and often there is no protection from the sun while tanning. Methods are crude, the places are unclean and unsanitary. The output of Desi tanneries during the course of a year must be enormous and these tanneries without machines will produce far better leather by merely cleaning up and adopting uniform pits and uniform liming and tanning.

3. The greater part of my time has been spent at the Amritsar Tannery as this was the best equipped plant. In December I changed the liming system thus saving 50 to 60 per cent on lime alone and about 40 per cent on the quantity of lime used. For upper leather the results have been better than the system previously used. Light colours have been fairly successful but nowhere in the Punjab have I found a good black. I tried several brands of dyestuffs before obtaining satisfactory results and quite recently the blacks have come all right. Considerable time was taken to set up the splitting machine but that works very well and it is just a question of time before the workmen can operate and make the necessary adjustments, themselves. I had no laboratory at the tannery to carry out tannery control work, but the

Department of Industrial Chemistry at Forman Christian College has done several tanning analyses as well as water analysis and analysis of materials. I have also had the use of the Forman Christian College laboratory for chrome tanning small lots of sheepskins and using Indian oils for fat-liquoring. Due to the fall in the leather market this tannery at Amritsar has stopped soaking (April) and as soon as most of the splitting is done I shall devote the greater part of my time to one of the other tanneries.

4. A large factor in the production of leather in the equipped tanneries is the workmen. Sheepskin workers are generally Madrasis who have to be brought to the Punjab at the tanner's expense. A large number of men come from Cawnpore and these men have to be paid their travelling expenses. To help the tanners Punjab men should be trained so as to have an available supply of workmen.

Demonstrations of new methods will be given as soon as the necessary materials are obtained. This should assist materially because it is quite difficult for a tanner to work out a new tannage from a formula alone.

To carry out the two ideas above, a scheme has been proposed and if properly handled, should go a long way towards bringing the tanning industry of the Punjab to its right position.

## APPENDIX D.

### REPORT ON THE WORKING OF THE MAYO SCHOOL OF ARTS, LAHORE, FOR THE YEAR 1920-21.

I took over charge from the Principal Mr. Lionel Heath upon his going on combined leave on 20th June 1920.

The number of students on the rolls at the beginning of the year under report was 195, while at the end of the year on the 31st March 1921 the number was 183, showing a decrease of 12. In addition to the above figures 20 students were admitted to the Sanitary Engineers Class for six months' training which do not appear either at the beginning or end of the year.

The number of new students admitted in the year was 161 against 143 last year. This shows a great loss of student strength during the term owing to students leaving before the completion of their training at various stages, some on account of the expenses of training and maintenance and some on account of their being able to earn very fair wages after short training. This is not a new feature but is accentuated at times like the present when wages are high and labour scarce.

*Departments.*—These are the same as last year as follows :—

1. Carpentry and cabinet work.
2. Black-smithy and fitter work.
3. Copper-smithy, silver-smithy and repousse work.
4. Cotton printing with hand blocks
5. Photo Lithography and process work.
6. Clay modelling and plaster work.
7. Training of Drawing Teachers.
8. Architectural.

*General Remarks.*—The work done by the various craft departments is considered very satisfactory but I very much regret that owing to lack of competent equipment and insufficient contract contingent grant we have not yet been able to open the Book-binding Department. The Principal is obtaining estimates in London for the required apparatus for this Department.

*Photo-Litho Department.*—The Photo-Litho Department has done hardly any practical work this year owing to the necessary stores and chemical being very difficult to get in India. The Principal is ordering a large supply of materials while in London which are expected shortly.

*Drawing Teachers Department.*—The Drawing Teachers' Department has slightly increased its number of students but we want many more and could guarantee posts to three times the number of certificated students turned out each year. This year eleven students entered for the final certificate and I am pleased to say that they all qualified.

*Architectural Draftsman Department.*—The students of the Department have also increased in number slightly and sanction to continue the Department for another two years has been received but this is a very unsatisfactory arrangement and leaves the students in mid air with no settled prospects. It is not surprising therefore that we do not get the right type of recruits and it as we find, that the education of Matric passed and failed student is insufficient to enable them to thoroughly understand either the technical lectures or the text-books in English. A temporary Department cannot possibly attract the type of student that is both well-educated and ambitious to get into a professional calling.

*School orders.*—Numberless orders were received and executed by the staff and students. Such orders as would give practice in useful and artistic work only are accepted and these form the basis for the class work in the different departments. The following are a few of the large works executed :—

1. Lord Kitchener War Memorial in Masonic Lodge, Simla.
2. Carved teak panelling to drawing room Government House.
3. Tracery Moghal Windows to Government House.
4. Coat of Arms of Lord Chemsford for Lawrence Military Asylum, Sanawar in plaster.
5. Punjab Coat of Arms for Council Chamber, Lahore.

*Boarding House.*—The hostel had to be vacated as the building had been purchased by Rai Bahadur Ganga Ram. As the arrangement for the purchase by Government of the Cathedral Boys' Orphanage hostel had not been completed, we were obliged to take temporary premises which have proved satisfactory.

*Staff.*—I am pleased to say that the majority of the staff worked satisfactorily and have not been affected by the non-co-operative movement. Mr. Gupta, officiating as Vice-Principal, was also officiating as Curator of the Museum and was deputed to arrange for the purchase and despatch of exhibits for the British Industries Fair, London so that very little of his time was available for work in the School of Arts.

*Office Clerks.*—During the year we lost by transfer all our experienced clerks which caused a good deal of inconvenience and delay. I suggest that as the School is no longer in the Department of Education that our clerical staff should be in the cadre of the Department of Industries as by this means we should have the men suited to the work which is not the case at present.

The following appendices give the statistics of the School under their separate heads

SHER MOHD. KHAN SAHIB,

*Offg. Principal, Mayo School of Arts.*

*Direct expenditure.*

	Rs.	A.	P.
Pay of Staff	45,629	10	0
Travelling Allowance	1,009	0	0
Office expenses and miscellaneous	9,993	12	0
Garden charges	109	2	6
Postage	163	0	0
Purchases of Books and Periodicals	225	13	7
Prizes	100	0	0
Pay of School menials and Workshop coolies	738	12	11
Hot and cold weather charges	750	13	0
Total	58,720	0	0

*Indirect expenditure.*

	Rs.	A.	P.
John Lawrence Scholarships	873	8	8
Industrial Middle School Scholarships	5,479	5	3
District Board	2,389	13	0
Municipal Board	1,292	9	3
Native State and Frontier	1,232	1	4
Private stipends			
Total	11,267	5	6



*Boarding-house expenses.*

			Rs.	A.	P.
Boarding-house rent	...	...	680	0	0
Nightsoil cart	...	...	180	0	0
Water rate	...	...	120	0	0
Superintendent and menials	...	...	612	0	0
Total	...	...	1,592	0	0

*Income from fees.*

Year.	School.	Boarding house.	Total.
1919-20	... 977	272	1,249
1920-21	... 1,145	271	1,416

*Classification of scholars according to race or creed.*

Europeans	...	...	...	..
Indian Christians	...	...	...	3
Hindus—Brahmans	...	...	...	10
„ —Non-Brahmans	...	...	...	36
Sikhs	...	...	...	16
Muhammadans	...	...	...	122
Parsis	...	...	...	...
Bengalis	...	...	...	...
Total	...	...	...	187

*Comparative statement for the last five years.*

	1916-17	1917-18.	1918-19.	1919-20	1920-21.
Elementary	96	74	73	50	66
Industrial	62	67	74	66	43
Draftsmen	12	...	...	...	...
Architectural Draftsmen	...	...	...	10	12
Teachers	76	67	56	40	45
Photo-Litho	19	30	26	23	18
Special Roorkee	..	...	2	3	1
Special Sanitary Inspector Class	...	...	...	...	20*
Cotton Printing	...	...	...	3	2
Total	265	288	281	195	207

\*This class was a temporary one for three months, and only 30 lectures were delivered to them hence not included as permanent school boys.

**APPENDIX E,**  
**REPORT ON THE GOVERNMENT ZENANA INDUSTRIAL**  
**SCHOOL FOR THE YEAR ENDING 31ST**  
**MARCH 1921.**

THIS school is still situated inside Sheranwala Gate, Lahore.

The average number of students in the school in any one month during the year was 22, and the average daily attendance was 13.

The number of students on roll on 31st March was 23.

There are 3 classes in the school.

1. *Elementary* —In which the following subjects are taught :—

- (1) Thread ball winding.
- (2) Spinning.
- (3) Gota weaving
- (4) Narrow wear weaving.

2. *Embroidery Class*.—in which are taught :—

- (1) Hand embroidery.
- (2) Machine embroidery.
- (3) Free-hand drawing and painting.
- (4) Sewing by hand and machine.
- (5) Cutting.

3. *Hosiery Class* —in which the manufacture of socks, stockings and hoses, of all different sizes is taught. Both silk tusser and cotton are used.

Ten students have passed out during the year. All these are doing useful work. One of these has secured service as an embroidery and sewing teacher in Victoria Girls' High School, Lahore, another 2 have fitted up Hosiery Machines in their households, the remaining seven are working in the Church Missionary Society.

Rupees 100 have been sanctioned for scholarships for the students. Within this amount scholarships ranging from Rs. 5 to Rs. 3 are given to deserving students. Out of 25 students at present on the rolls 22 are drawing scholarships.

As sewing and cutting has recently been introduced the school is likely to expand. When admissions are increased a teacher for tailoring work will become necessary.

It may be noted that 11 students of our school attended the weekly classes of Miss Graham, Inspectress of Domestic Science, and secured certificates.

(Mrs.) R. S. DASS.

## APPENDIX F.

ANNUAL REPORT ON THE WORKING AND ACTIVITIES  
OF THE DYEING EXPERT FROM MARCH 1920  
TO MARCH 1921.

THE activities of the Dyeing Expert come under the heads of :

*A.*—The Dyeing School, Forman Christian College, Lahore, and

*B.* As a specialist in Dyeing rendering help and Technical advice to industrialists, Factory Owners, Dyers and other people interested in the Art of Dyeing.

*A. Dyeing School.*—In the year under report both the old and new classes were working because the session was to end in July 1920

At that time there were 34 students getting training in the school as :—

- (a) Eighteen students of the B.Sc. Industrial Chemistry Class of the Forman Christian College, Lahore, preparing for the B. Sc. Degree examination of the Punjab University. The course in Industrial Chemistry Class includes training in Dyeing along with other subjects, *e g*, Soap, Oil, Sugar, Leather, Chemicals, Fertilisers, etc., etc. They attended Practical and Theoretical lectures on Dyeing and Bleaching for about four months in the year.
- (b) Sixteen students including both regular and casual students of the Artizan Class ; 6 belonging to the latter category.

Out of the casual students 2 were proprietors of Hand Loom Weaving Factories, who learnt dyeing to improve their weaving trade, one proprietor of Dry Cleaning Factory, one a student of Industrial School, Rohtak, one a student of M.Sc. Class, Forman Christian College Lahore ; one Sub-Inspector, Industrial Co-operative Society, one weaver and three educated non-artizans. One of these has started a Blanket Factory in the Gurdaspur District and is working successfully.

Out of the regular students 2 were dyers, 2 weavers and 2 non-artizan educated students. One of these non-artizan students has started a Dyeing Factory at Ludhiana and is doing fairly well ; whilst the other L. Amrao Chand is working as a Demonstrator in the Dyeing School itself taking classes in practical. He has qualified as a Dyeing Master in so short a time. One of the dyers has started garment dyeing on a large scale at Rawalpinli with great success. Others are working in Weaving Factories but nothing is definitely known of them.

The next session of the school began from October 1920.

The students trained in the school up till March 1921 are as follows :—

- (a) Nineteen students of the B.Sc. class appearing for the Degree Examination of the Punjab University in 1922.

- (b) Thirty-five students including both regular and casual students, including 20 of the former and 15 of the latter class.

Out of the regular students there are 2 weavers, 6 dyers and 12 non-artizan educated students. Some 3 of them are matriculates.

Out of the casual students one was a graduate, one undergraduate and some 7 matriculates. Three of these were representatives of firms. One has started hosiery works, 3 have joined the weaving class at Amritsar and about others nothing is known so far.

The great achievement of the Dyeing School this year has been to attract capitalists running or intending to run Weaving Factories.

*Expansion of the School.*—The number of the students getting training is increasing day by day and there is a great demand for the expansion of the school.

Some small expansion was made in the Laboratory room and a limited number of tubs of wood and copper were introduced for carrying on the work of the dyeing of yarn on a large scale. The chief feature of the expansion has been the appointment of the Research Assistant to the Dyeing Expert to carry on research work on indigenous colouring matters which has been hitherto neglected. The appointment took effect from October 1920.

The research work this year has been limited to matching of bazar shades, bringing out new shades, valuation of the colours submitted for examination and ascertaining the fastness of the colours obtained from different companies.

The work done this year (from November 1920 to March 1921) is as follows :—

- (i) Examination of the sample colours from Borstal Jail.
- (ii) Examination of the sample colours from Raj & Co.
- (iii) Preparation of record ink.
- (iv) Bleaching of silk samples from Kashmir Silk Weaving Factory.
- (v) Determination of the fastness of the different classes of colours from National Aniline Company, United States of America and British Dyestuff Corporation.
- (vi) Determination of a suitable method of bleaching silk and wool.

The work was hampered owing to the ill-health of the Dyeing Expert.

In addition to this, the Research Assistant has been put in charge of :—

- (a) Special Course students such as B.Sc. students of the Industrial Chemistry Class and M.Sc. students in Chemistry who do special work concerning Dyeing. This year three students did special work in the Laboratory ; 1 B.Sc. and 2 M.Sc. students.
- (b) Demonstration work in Dyeing to III and IV-Year students of the B.Sc. Industrial Chemistry Class.
- (c) As assistant, doing correspondence work, writing reports, answering queries, etc., taking up classes in the absence of the Dyeing Expert.
- (d) Sale of Alizarine.

*Practical Work on a large Scale.*—The experiment on Garment dyeing has been continued. Although the work was limited owing to the absence of suitable arrangement for dyeing and bleaching cloth on a large scale, yet some 300 experiments were performed with the accessories available. Such as the dyeing of garments, cotton, wool and silk, and yarn of every kind of fibre in addition to the ordinary class practicals and the sum realised amounted to Rs. 350 approximately. With proper arrangement for dyeing and bleaching cloth on a large scale the income can be considerably increased and the students better fitted to do the work in factories.

*Conclusion.*—The above progress of the school is sufficient to indicate the future line of action to be followed. There is a great need for extension which will prove of immense benefit to the dyers and will be an impetus to the shy capitalists of the Province.

The school should concentrate its efforts on turning out educated men who are well up in the Art of Dyeing and thus are able to supervise and teach the art systematically and scientifically.

*B. Activities in other directions.*—The Department has been helping individuals and firms to solve their difficulties about dyeing, etc., and names of some of them are given below :—

1. Borstal and Central Jails.
2. Bharat Udhar Company, Amritsar.
3. Weaving and Spinning Company, Kashmir.
4. Partap Stores, Ludhiana
5. Newman's Carpet Factory, Amritsar.
6. Weavers' Central Co-operative Stores, Amritsar.
7. Rura Mal-Mata Din, Ambala.
8. Seth Jaman Dass-Hakim Rai, Sultan.
9. Umar & Sons, Ludhiana.
10. Friends and Co., Lahore.

In addition to this the Department has been rendering help to dyers, Calico printers and factory owners in the following ways also :—

(a) *Supply of Alizarine.*—The supply of Alizarine has proved a boon and a blessing to the poor Calico printers who were about to give up the profession out of want of dye-stuff; the experiment was continued. The Department has been supplying alizarine at as low a rate as possible.

The sale this year was begun in January 1921 and till March some 500 men have been helped and to this may be added the number supplied by the Co-operative Societies. Several casks of alizarine have been sold.

(b) The department has been supplying help and advice to the small capitalists who intended to start weaving and hand loom factories together with dyeing of the yarn used there. It has been bringing the people in touch with the colour firms to take up work on a large scale and have been supplying sample colours and chemicals giving them methods of dyeing particular fast shades.

(c) The Dyeing Expert visited Bombay in connection with the distribution of the German Reperation Dyes and visited Amritsar, Sialkot, Ludhiana, etc., in order to ascertain the number of Dyers and Calico Printers requiring genuine colours for their use.

(d) Every help was given to the Industrial Inspector, Co-operative Societies, the Superintendents, Borstal and Central Jails, owners of Carpet Factories, ink makers, etc., etc.

*C. Miscellaneous.*—The following is the list of the expenditure incurred on the School :—

			Rs.	A.	P.
Pay and allowances	...	...	5,549	2	4
Contingencies	...	...	1,816	3	9
Travelling allowance	...	...	404	8	6
Total	...	...	7,769	14	7

*Conclusion.*—Next year it is hoped to extend the activities of the Department and to try to keep pace with the needs of the Province thus improving the art of dyeing in the Province and striving to bring it on a scientific basis.

GIRDHARI LAL, SURI,

DATED LAHORE :

1st July 1921.

B. Sc. (Hons.),

Research Assistant,

for Dyeing Expert,

P. O. C. Dyeing Department.

## APPENDIX G.

REPORT ON THE WORKING OF THE PUNJAB BOILER  
INSPECTION DEPARTMENT FOR THE YEAR 1920-21.

DURING the year under report 730 Boilers were examined and Licenses authorising their use were issued for 607 boilers, the rest, *viz.*, 123 boilers being the property of the Government. Seventy-four licenses were issued for short periods, in certain cases on reduced pressure which were found old and in a state of deterioration, others in good condition short time licenses were granted in order to group inspection of districts. Out of the above number a good many plants had to be examined on the 2nd and 3rd visits, owing to them not being prepared for inspection in accordance with the instructions issued from this office, others that were found defective were again surveyed after repairs and hydraulic tested and in certain cases steam tested before granting licenses for a safe working pressure.

2. The sum collected on account of inspection fees of boilers amounted to Rs. 27,869 representing an increase of Rs. 5,655 over last year's figures. This increase is due to the extension of the Boiler Act to Okara, Montgomery and Khanewal Tahsils and inspection of Military boilers of Waziristan Field Force. The collected fees do not include any amount for the boilers belonging to Provincial Government which were examined by this Department, this is in accordance with the rules in force.

3. One boiler was condemned owing to the plates being deteriorated, and badly oxidized.

There were two collapses of boilers, one was due to shortage of water the other owing to scale adhering hard to the plates.

4. Three hundred and seven casual visits were paid to various places by the Inspectors of this Department for the efficient administration of the Act and had the desired effect in detecting irregularities. Some of the plants were found at work with serious defects. These licenses were cancelled until such time, the repairs pointed out, were executed, visits were then paid to verify repair work, hydraulic and steam tests before granting fresh license for a safe working pressure.

5. Total mileage travelled during the year by the Inspectors were 36,307 miles.

One thousand two hundred and forty-five letters were received in the Boiler Inspector's office and the number of issue was 1,194.

6. The same trouble still exists in notifying places for inspection as pointed out in my report for the year 1916-17 and would again suggest that when areas for inspection are to be extended the whole of the district should be brought under the operation of the Boiler Act. This would relieve the Factory Owners and Boiler Inspection Department of a great deal of unnecessary correspondence as often boilers have been examined that are just outside the area defined in the Act and all such fees collected for the issuing of licenses have to be refunded by the Accountant-General, Punjab, to the Factory Owners. For instance, Raewind, Pattoki, Rajajang, etc., are not under the notified area while places adjacent to these, namely Kasur, Changa Manga and Chunian are included in the Act. All these places are in Lahore District.

7. In conclusion, I am pleased to mention that the work of the Boiler Office on the whole for the year 1920-21 was carried out satisfactorily having little or no trouble with Factory Owners and pleased to say there were no prosecutions.

W. T. WATSON,

31st May 1921.

Steam Boiler Inspector to Government,  
Punjab.

## APPENDIX H.

### ANNUAL REPORT ON THE WORKING OF THE WEAVERS CO-OPERATIVE SOCIETIES IN THE PUNJAB.

1. Ten new societies and one new Union have been registered during the year. The societies at Rupar and Mirza (Attock District) have been closed. There are now 57 Primary Societies, three Unions and one Central Institution (the Weavers' Central Co-operative Stores, Limited), Amritsar.

2. Three of the new societies are of silk weavers of Multan City. This is a new field, which necessitated considerable preliminary inquiry as to the markets of purchase and sale before the societies could be organised. As it is, a lot of opposition is being met with from the middlemen, who have hitherto controlled and financed the industry. Fresh ground has also been broken in the Zafarwal Tahsil of the Sialkot District, where 4 new societies have been opened. Past experience has shown that owing to difficulties of supervision, supply and marketing the isolated society has little hope of success, and new societies are now as far as possible only opened where there is a prospect of future expansion in the same locality.

3. Sheikh Manzur Ali was Inspector in charge of the societies throughout the year. M. Niaz, B.Sc., a weaver by caste, has been enrolled as an Inspector candidate, and is now under training. There are 3 Sub-Inspectors and 3 Supervisors, all of whom, with one exception, are weavers by caste.

4. This year for the first time opposition to the opening of these societies has been sometimes offered by the owners of the villages. The opposition is perhaps natural enough, and in its way testifies to the benefit of the movement to the weavers.

5. The year was a difficult one for the societies, some of which worked at a loss, chiefly owing to the extraordinary and unexpected fall in the price of yarn from the month of October onwards. Stocks purchased by societies had in some cases to be disposed of at a loss. The societies are now receiving regular fortnightly information from the Central Stores as to the rates of the principal counts of yarn at the important markets, with a note by the Manager as to the tendency of prices. This should assist them in indenting, and in making local purchases. Moreover, as the Stores is assuming to itself more and more the functions and responsibilities of a yarn store, the societies are being discouraged from keeping their capital (most of which is borrowed) locked up in stocks of raw material in excess of their immediate requirements.

6. There are now 1,204 weaver members of the societies as compared with 1,020 last year not a single reference to arbitration was found necessary during the year. Share capital has increased from Rs. 9,716 to Rs. 10,678



and Reserve Fund from Rs. 13,733 to 15,111. Profits this year have declined from Rs. 1,683 to Rs. 1,354. The societies' owned capital is still only about 28 per cent of their total working capital. Interest at 8½ per cent, per annum has to be paid on borrowed money, and this is one of the heaviest items of expense. Efforts are constantly being made to increase the owned capital, and to encourage thrift by share contributions and savings deposits of members. The weaver is conservative and apt to be suspicious. Moreover, he is poor, and the process, though steady, must necessarily be slow. Efforts too are made to interest the public in the movement, and to obtain deposits at easy rates of interest. So far however little success has been obtained, though the fine example of the Veterinary Assistant of Haryana, who has deposited Rs. 700 with the Tajpur Weavers Union deserves to be cited.

7. The societies this year purchased only half their requirements of raw material through the Stores. Much teaching is still required to convince the village weaver that the Stores exists for his benefit only, and belongs to the societies. At general and committee meetings emphasis is laid down on this aspect, and efforts are being made to find a weaver for the post of Assistant Manager.

8. The functions of the three Unions have been mentioned in last year's report. Though two of them worked at a loss during the year, they have been of real assistance to their constituent societies, and have been found a most useful link in the organisation.

9. The Weavers Central Co-operative Stores, has been located in the Hall Bazar, Amritsar, during the year. Now that the committee has decided to open a shop for sale of the weavers' products, a move has been made to a site near the wholesale cloth market in the heart of the city. The Inspector, Co-operative Information Bureau, held charge of the post of Manager, in addition of his own duties, for most of the year, as no suitable wholetime Manager could be found. The Stores had a working capital during the year of almost Rs. one lakh, of which Rs 16,000 is owned, interest being paid on the balance at 7—7½ per cent per annum. The year's turnover was nearly Rs. five lakhs, and the profit earned was Rs 1,490 as compared with Rs. 6,754 of last year. Expenses of management were higher during the year but the chief reason for the small profit earned was the state of the yarn, market, which precluded all possibility, consistent with the welfare of the societies, of any profits on purchase and sale of raw material. The Manager, too, as already remarked, was new, and could only devote portion of his time to the Stores.

The North-Western Railway was as usual the chief customer of the Stores and goods to the value of Rs. 25,000 were supplied. This shows a considerable falling off from last year's business (Rs 60,000) with the same Department. Rs 11,000 of bed durris were supplied to the Controller, Textiles, as compared with Rs. 28,000, last year : another large order is now in hand. Considerable quantities of goods were disposed of to Swedeshi Stores, and opportunity was taken to exhibit and sell the weavers' products at the Lyallpur fair and at the Sikh Educational Conference at Hoshiarpur. Efforts are also being made to open up business connections in Rawalpindi and Peshawar for the sale of head lungis and silks.

District Officers have in some cases begun to take some interest in the Stores, and to place orders. Goods worth Rs. 7,000 were supplied, and

the weavers' best thanks are due to the Deputy Commissioners of Sheikhpura, Gujranwala, Lyallpur and Hoshiarpur, and to the Superintendent of Police, Dera Ghazi Khan, for the orders received. More orders from Government Departments for articles like bandage cloth, police safas, bastas, and presentation lungis would be welcomed: many letters are issued, but results in the shape of orders are very meagre. Members of Co-operative Societies were supplied through the Inspectors and Supply Unions with goods to the value of Rs. 6,000.

10. The following details about individual societies and new features of the movement, may be of interest :—

The Nurpur (Kangra) Society of Pashmina Weavers decided this year to purchase its Pashm in the Kulu market, instead of depending, as hitherto, on the Nurpur middlemen. Two of the members made the journey to Kulu at Dusehra and bought pashm for the society. The purchase was not favourable, as rates subsequently fell. They intend however to repeat the experiment next year, and are endeavouring to dispense with the local shopkeeper and even with the big merchants of Amritsar, in the marketing of their finished goods. There are many difficulties, but the spirit of the members is good. The society of woollen weavers in Karari (Hoshiarpur District) sold most of its output this year through the Stores. This is an isolated society, members of which had hitherto been unable to get into direct touch with consumers. The Jullundur silk societies had for some time this year considerable difficulty in marketing their products. Their market is a fluctuating one, dependent as it is on whether the season is propitious for marriages or otherwise. They are being encouraged to prepare more readily marketable articles, and the same applies to the silk weavers of Bhera and Pind Dadan Khan.

Weavers are notoriously backward and slow to assimilate new ideas. Some of the credit societies in the Province had started night schools for their members, and the weavers' societies have been urged to follow their example. Four weavers' night schools have been started, in which elementary instruction in reading and writing is being given. There are many difficulties, and probably some special assistance will be required in the way of funds and staff if they are to survive time.

11. Members of societies joined the Government Weavery School at Sham Chuasi and passed out successfully after a year's training. Four of them have taken service at high wages in capitalist factories, whilst the others are using the improved looms in their own villages and teaching their relations. Nine more have entered the school this year, whilst two have joined the Sialkot School. In addition to these others have joined as casual students. Having regard to the conservatism of the village weaver, and difficulty of bringing him near any institution belonging to Government, these results are good. Many weavers were slow in applying for admission, and found that the stipends had already been awarded, for want of weaver applicants, to non-weavers.

12. It is interesting to note a tendency on the part of the village weavers to assemble and work together under a common shed. The tendency is to be encouraged, for it facilitates supervision, uniformity and regular output. In one village some of the weavers have proposed to start a small hand-loom factory on co-operative lines. The scheme is only held up by the difficulty in obtaining land from the zamindars, who are putting every obstacle in the way.

13 Though owing to the special difficulties enumerated above, and partly also to the lack of business experience, neither the Stores nor the societies can show any large profits earned during the year, there is no doubt that they have conferred considerable benefit upon their members.

The year has been a very good one for the members of the societies. Owing to the present popularity of cloth woven on the handloom, they are sometimes tempted by the high wages offered in the handloom factories. Where however their goods are assured of a market, they invariably prefer the independence offered by the society to the status of a wage earned in the factory.

14. The year's working shows that in the matter of supply of raw material at favourable rates, the Stores has not been able to give much assistance to the societies. The latter tends to lose heart, and to revert to the old vicious system of obtaining their requirements on credit from the village shopkeeper. The causes of the failure are the Manager's lack of experience and inability to devote sufficient time to the business, the want of sufficient capital, and the system of purchasing raw-material on indent only. This system has now been abandoned, and the Manager has been given discretion within certain limits to effect purchases without waiting for indents and to keep yarn in store. The working capital has been increased, and there is now a wholetime Manager.

15. The following honorary workers deserve mention for their assistance during the year :—

1. M. Barkat Ali, Schoolmaster of Jullundur, Karar Khan Society.
2. M. Shabab Din, President, Said Kabir Weavers' Society Jullundur.
3. M. Rahmat Ali, Schoolmaster, of Tajpur, Hoshiarpur District.
4. M. Muhammad Din, weaver, Clerk, Office of Deputy Commissioner, Hoshiarpur.
5. Malik Muhammad Maqbul, President of the Nurpur Pashmina Weavers' Society, Kangra.

W. W. POWELL,

*Deputy Registrar.*