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COMMISSION.

BRITISH GUIANA.

By His Excellency Sir GRAEME THOMSON, Knight Commander of the Most Honourable Order of the Bath, Governor and Commander-in-Chief in and over the Colony of British Guiana, Vice-Admiral of the same,

L.S.

GRAEME THOMSON,
Governor.

&c., &c., &c.

To

His Honour Sir CHARLES MAJOR, Knight Bachelor, Chief Justice of British Guiana.

The Honourable ROBERT EDWARD BRASSINGTON.

The Honourable EUSTACE GORDON WOOLFORD, K.C.

The Honourable PHILIP NATHANIEL BROWNE, K.C.

The Honourable ANDREW BENJAMIN BROWN.

JOSEPH ALEXANDER LUCKHOO, Esquire, K.C., F.R.

Major WILLIAM BAIN GRAY, Commissioner of Education.

ERNEST WYNN-WILLIAMS, Esquire, His Majesty's Inspector of Schools.

EDWIN RICHARD DENNYS MOULDER, Esquire, M.A., Principal of Queen's College.

EDGAR BECKETT, Esquire, F.L.S., Superintendent of Onderneeming Industrial School.

The Reverend Canon OLIVER HAYDOCK WILSON.

The Reverend Father BERNARD FRANCIS KILLION, S.J.

RALPH HAMILTON CARR, Esquire.

GEORGE RODHOUSE REID, Esquire, a Justice of the Peace.

Miss LOUISA BOVELL HAMPDEN KING.

Miss EMILY JANE BASKETT, Principal, Girls' High School.

GREETING!

WHEREAS it is desirable that enquiry should be made into the circumstances and requirements of education in this Colony:

NOW THEREFORE know ye that I, Sir Graeme Thomson, Governor as aforesaid, reposing full trust and confidence in your zeal, ability and discretion, do hereby appoint you the said Sir Charles Major, Robert Edward Brassington, Eustace Gordon Woolford, Philip Nathaniel Browne, Andrew Benjamin Brown, Joseph Alexander Luckhoo, William Bain Gray, Ernest Wynn-Williams, Edwin Richard Dennys Moulder, Edgar Beckett, Oliver Haydock Wilson, Bernard Francis Killion, Ralph Hamilton Carr, George Rodhouse Reid, Louisa Bovell Hampden King and Emily Jane Baskett to be Commissioners to enquire into all matters financial and

otherwise relating to primary, secondary and technical education in the Colony, and to make recommendations, in particular as to the system of education best suited to local conditions and requirements, as to the training of Teachers and the expediency of establishing Government schools, and with regard to the desirability or otherwise of granting assistance from public funds to secondary schools :

And for the due execution of this my Commission, I do hereby empower you the said Commissioners to do all such things and exercise all such powers as may be necessary for the purpose aforesaid :

And I do hereby further declare that you the said Sir Charles Major shall be Chairman of the said Commission :

And I do hereby further declare that any six or more of you the said Commissioners may from time to time proceed in the execution of this my Commission, and in every matter and thing herein contained.

Given under my Hand and the Public Seal of the Colony at the Guiana Public Buildings, Georgetown, Demerara, this 14th day of November, 1924, and in the Fifteenth year of His Majesty's reign.

By His Excellency's Command,

R. POPHAM LOBB,
Colonial Secretary.

AN ADDITIONAL APPOINTMENT.

BRITISH GUIANA.
No. 5707.

Government House,
British Guiana,
17th November, 1924.

SIR,

With reference to Your Honour's letter of to-day's date, I have the honour to inform you that I have appointed Mr. A. A. Thorne, M.A., to be a Member of the Education Commission,

2. A copy of the Commission issued to Mr. Thorne is enclosed for Your Honour's information.

I have the honour to be,

Sir,

Your obedient Servant,

GRAEME THOMSON,
Governor.

His Honour
Sir CHARLES MAJOR, Kt.,
Chief Justice.

TO HIS EXCELLENCY SIR GRAEME THOMSON, KNIGHT COMMANDER OF THE MOST HONOURABLE ORDER OF THE BATH, GOVERNOR AND COMMANDER-IN-CHIEF IN AND OVER THE COLONY OF BRITISH GUIANA, VICE-ADMIRAL OF THE SAME, &c., &c., &c.

WE, the Commissioners appointed by Your Excellency "to enquire into all "matters financial and otherwise relating to primary, secondary and technical "education in the colony, and to make recommendations, in particular as to the "system of education best suited to local conditions and requirements, as to the "training of teachers and the expediency of establishing Government schools and "with regard to the desirability or otherwise of granting assistance from public "funds to secondary schools," have the honour to submit the following report.

We have held 28 meetings on the dates and with the attendances appearing in Appendix A. Minutes of those meetings will be found in Appendix B.

We took evidence—

- (a) written, in answer to a series of questions, and
 (b) oral, either original, or supplemental to their answers in writing, from the following witnesses :—

<p>The Principal of Queen's College ; The Superintendent of Onderneeming Industrial School ; The Principal of the Bishop's High School for Girls ; Mr. Thorne ; Mr. Carr ; Mr. Reid ; Mr. Manoel Louis Ramas Andrade, for the Portuguese community ; Messrs. Arno and Bunyan, for the Teachers' Association ; Mr. Mudkollall Bhowe, for the Hindoo community ; Mr. Edward Ernest Stanislaus Blackman, Principal of St. Joseph's Seminary ; The Rev. Joseph Barnett Brindley, Chairman and General Superintendent of the Wesleyan Church ; The Rev. W. Hawley Bryant, Secretary of the Primary School Managers' Union ; The Rev. John Dingwall, Chairman, Moravian Governing Board ; Mr. M. A. Edan, for the Mohammedan community ; The Right Rev. Compton Theodore Galton, D.D., Roman Catholic Bishop in British Guiana ; The Rev. John Meikle Gray, M.A., Moderator of the Presbytery, Church of Scotland ; The Rev. Harlow Edgar Haas, A.B., B.D., of the Lutheran Church, New Amsterdam ; The Rev. Arthur Mordaunt Hale, M.A. ; Sir John Harrison, C.M.G., M.A., Director of Science and Agriculture ; Dr. Percy James Kelly, M.B., Ch.B., Surgeon General ; Mr. Frederick Orlando Low, for the Chinese Community ; The Right Rev. Oswald Hutton Parry, M.A., Bishop of Guiana ; The Rev. James Persaud, for the East Indian community ; Mr. Edward Oliver Pilgrim, B. Sc. Queen's College Staff ; Mr. Fawcett Pudsey, A.M. Inst. C.E. ; A.M. Inst. Mech.E., Director of Public Works ; The Rev. Father Purcell, Priest in charge of the Roman Catholic Church at Victoria, East Coast, Demerara ; The Rev. James Amos Scrimgeour, M.A., Chairman of the Canadian Presbyterian Mission Council ; Mr. Robert Strang, Manager of Plantation Uitvlugt ;</p>	<p>} Members of the Commission.</p>
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Mr. William Alexander Walker, A.M. Inst. Mech. E., Chief Mechanical Engineer of Sproston, Ltd. ;

The Rev. George Weld, M.A., Principal of St. Stanislaus College.

The written evidence forms Part 1, the oral evidence Part 2, of Appendix C.*

In preparing this report we have not thought it necessary to state at length the reasons for each recommendation put forward. To do so would be to go over practically the same ground as Mr. Wynn-Williams has covered in the memorandum which we attach as Appendix D. We have, therefore, relied for destructive criticism mainly upon his memorandum, supplemented where necessary by the evidence of witnesses, and have addressed ourselves to the constructive aspect of our task by putting forward a series of recommendations which, we hope, will remedy the defects which have been pointed out. It may also be added here that, although the Commission as a whole concurs generally in Mr. Wynn-Williams' memorandum, individual members are not committed to a full endorsement of his criticisms and conclusions, and several have expressed their dissent from his remarks on the subject of secondary education.

We are fully aware that many of the recommendations which we are now making have been put forward by various Commissions in the past. As, however, these recommendations have not been acted upon, and are, moreover, scattered throughout a number of documents which are not readily accessible, we have incorporated in our report all our conclusions, irrespective of their previous history.

It should also be understood that our recommendations are not intended to meet every contingency which may arise in connection with a particular part of our subject. They deal mainly with general principles, in accordance with which new regulations, or amendments to existing ones, should be framed.

For the sake of convenience we have divided our report into the following chapters:—I, Primary Education; II, Higher Education (Secondary and Technical); III, Training of Teachers; IV, Administration; and V, Finance. This grouping is, of course, logical and formal, and does not correspond to any hard and fast division of the educational functions of the State. On the contrary, we wish to make it clear at the outset, that in our opinion those who direct the educational policy of the Colony should deal with the problem of education as a whole, and that those who administer any part of the educational system should be familiar with all the other branches of it.

I.

PRIMARY EDUCATION.

1. The first problem which arises in connection with primary education is the supply of schools. It seems to be impossible to make any general statement as to the sufficiency or insufficiency of schools which will be true of all parts of the Colony. There are, however, undoubtedly too many schools in the main centres of population—Georgetown, New Amsterdam, and Buxton with Friendship. In these centres, as elsewhere in the Colony it would be difficult, if not impossible, to find even one school which is properly staffed and equipped, and in a thoroughly satisfactory condition in respect of sanitation and water supply. We are of opinion that the dissipation of educational energy over a large number of small, insanitary, ill-equipped, and inadequately staffed schools will continue in a greater or less degree, so long as the State relies upon competing denominations to provide schools for the people.

2. While fully acknowledging the great services which the Churches have rendered to education in the past, we are of opinion that the time has now arrived to initiate a bold and comprehensive policy which will replace the existing denomina-

* Not Printed.

tional schools by government or colonial schools. With this in view, we recommend :—

- (a) that three colonial primary schools, adequately staffed and equipped (to be used as demonstration schools for teachers in training) be established forthwith in Georgetown, to be followed by one central school for boys who have attained the age of 12 years, and one central school for girls of the same age;
- (b) that two colonial primary schools be established forthwith in New Amsterdam, and two in the village of Buxton with Friendship;
- (c) that a similar policy be adopted gradually in urban and rural districts served by more than one school, and that a schedule of those districts be prepared immediately and sites secured; and
- (d) that no grants-in-aid be given to denominational schools in districts adequately served by colonial schools.

3. In the main centres of population the colonial schools should each contain accommodation for about 750 pupils. This figure should be regarded as the maximum, and should not be exceeded except for very good reasons, *e.g.*, where a slight increase in accommodation would save the erection of another school. In other areas, the accommodation of the colonial schools would probably not exceed 400—600, but we wish to make it clear that the concentration of the school population in larger schools than exist at present is an integral part of the policy we recommend.

4. In all schemes for the establishment of colonial schools, or the re-organisation of existing schools, every effort should be made to provide separate premises (or at least separate departments) for boys and girls beyond the infant school age. We recommend this as much in the interest of efficiency as of public morals. It will be necessary to introduce as soon as possible a curriculum in which practical instruction will play a very large part. There will be a considerable gulf between the course for boys and the course for girls during the later years of school life, and it will greatly simplify the task of introducing and working the new curriculum if the boys and girls are housed in separate schools or departments.

5. A special problem arises as to the sites of the first three colonial schools in Georgetown. This appears to be a matter for the consideration of the Government Departments concerned, but we are of opinion that priority should be given to the claims of the most densely populated parts of the city, in which the present schools are least satisfactory in respect of sanitation and equipment.

6. It is obvious that even under the most favourable conditions it will be some years before the Colony is supplied with adequate and sanitary colonial schools. In the meantime it is essential that steps be taken to remedy the deplorable conditions which exist in many primary schools. Dilapidated, dirty, and insanitary schools are the rule rather than the exception. In the past the responsibility for keeping school buildings in repair has rested on the denominations, who have received from the Government a maintenance grant. In most instances, however, this has been found insufficient for the purpose, even when supplemented by voluntary effort. The maintenance grants have been very much reduced in recent years, and unless immediate and drastic action be taken, a large proportion of children of the Colony will continue to be educated amid surroundings of the worst kind. There are obvious objections to spending public money on private buildings, but the question is so pressing that we consider that these objections must be over-ruled in the interests of the children concerned.

7. If our recommendations for the establishment of colonial schools be adopted, it will clearly be unnecessary to attempt to put the premises of all the existing schools of the Colony into a satisfactory state of repair. Some will be ear-marked for early absorption into one of the colonial schools. To meet the most pressing needs of the others we recommend :—

- (a) that in 1926, (and so long thereafter as may be necessary) increased funds be provided for the purpose of putting into a reasonable state of repair (especially in respect of cleanliness and sanitation) the buildings, out-houses, and surroundings of state-aided primary schools, which, in the opinion of the Governing Body concerned and of the Commissioner of Education, will necessarily be used as schools for at least five years thereafter ; and
- (b) that, if the Governing Body and the Commissioner of Education fail to agree as to the eligibility of any school to receive a portion of this grant, the matter be referred to the Consultative Council,* whose decision will be final.

8. The same principle should be adopted in the matter of school equipment. The present lack of suitable desks and benches in the schools constitutes a serious danger to public health, as the pupils are required to work in a variety of unsuitable postures during the critical period of bodily growth. We realise, however, that the question of sanitation must take precedence of equipment. On the other hand, the objection to spending public funds on private property does not arise in the matter of school furniture which, if provided now, would remain public property and be moved from the present denominational schools to the colonial schools which, we hope, will replace them in due course.

9. The question of playing fields also calls for special mention. Even the premier educational institution of the Colony—Queen's College—is not sufficiently provided for in this respect, and practically nothing has been done for the primary schools. The provision of proper facilities for physical exercises and organised games is an essential part of a sound educational policy, and must be regarded as an important factor in dealing with the question of sites for the proposed colonial schools.

10. Having provided well built and sanitary schools, and equipment of a type suitable for growing children, it is clear that machinery will be necessary to ensure that the schools and their surroundings remain at the high standard required, and that the physical welfare of the children is safeguarded. All the evidence available points to the urgent need for the regular medical inspection of schools and school children. We recommend therefore :—

- (a) that the premises of all schools, which are supported wholly or in part by public funds, be inspected and reported on from time to time by a medical officer appointed for the purpose by the Surgeon General ;
- (b) that all pupils be required to undergo medical and dental inspection ;
- (c) that proper records be kept of the inspections and filed at the Education Office ; and
- (d) that it be left to the discretion of the Commissioner of Education to take any action that he may think fit in the case of any child whose presence at school jeopardizes the health of other children.

11. The Surgeon General has suggested that the work of inspecting schools and school children is eminently suitable for a fully qualified woman—an opinion which we endorse, and to which we hope full consideration will be given in dealing with this important matter. †

12. The curriculum actually carried out in the primary schools clearly calls for reconsideration and reform in two directions—greater emphasis should be placed

*The composition and powers of this body are described in Chapter IV.—'Administration.

†In this connection we desire to call attention to the possibility of reducing the incidence of Hook-worm disease among school children, by means of some regulated form of mass treatment to be carried out in the schools, (vide memorandum from the Surgeon General dated 31st December, 1924. We have not considered it necessary to work out a detailed scheme for the medical inspection of school children which is obviously the duty of the Departments concerned), but reference may be made to the report of the Trinidad Ankylostomiasis Commission for the year 1923 (pp. 9—13), which contains a scheme for the inspection of schools in Trinidad. In considering the introduction of a similar scheme in this Colony, the Trinidad proposals would form a useful basis of discussion.

on the formation of character than on the imparting of knowledge, and the work of the schools should be brought into close touch with the life of the community. With these aims in view we recommend:—

- (a) that proper attention be given to physical exercises and organised games;
- (b) that personal hygiene and public health be treated as matters of prime importance throughout the whole curriculum;
- (c) that practical work be an integral part of the curriculum at every stage, but more especially at the infant school stage, and beyond the age of 11 years;
- (d) that there be greater variety in the courses of instruction provided for the elder pupils, differentiation being made according to the sex of the pupil and to the type of school (urban, rural or riverside); and
- (e) that there be included, in the curriculum for girls, instruction in domestic subjects, including the care of children.

Beyond these general recommendations (any one of which, if carried into full effect, would radically alter the work of the schools) we are not prepared to go. The task of arranging details is obviously one for the department concerned, and we understand that the Department of Education, with the co-operation of school managers and teachers, is already preparing syllabuses in accordance with these principles. Their introduction into the schools must obviously depend upon the supply of qualified teachers and of the necessary equipment.

13. It will have been noticed that three of the recommendations in the foregoing paragraph refer chiefly to children beyond the age of 11 years. In the past the work of these children has, in primary schools, been regarded mainly as a continuation of the education previously given. This does not meet the needs of the present day, and the period from 12 to 14 years calls for special organization and methods. With this in view we recommend that all children in the primary schools who are between the ages of 11 and 12, and of normal attainments, should undergo a test in English and Arithmetic up to, and including, the work of the Fifth Standard (now Upper Division (a)). This, in conjunction with the regular inspections by the officers of the Education Department, would help to keep the schools up to a uniformly high standard of efficiency, and would, to a large extent, decide the educational future of each child.

14. As a result of this test one group of children should be selected for a course of higher education at secondary schools, another for a course of higher education at the junior technical school. The third group should proceed to the advanced divisions of their own schools or, if resident in Georgetown, to central schools.

15. The curriculum for the pupils in advanced divisions or in central schools should be framed in accordance with the principles laid down in paragraph 12. It should not be definitely "vocational" in the sense of attempting to fit each pupil for a particular occupation. But the curriculum should have a practical bias; and have, as its main objective, the directing of the children's interests and activities towards the agricultural or industrial life of the community in which they will soon be called upon to take their place. At least 50% of the pupils' time should therefore be spent in practical instruction—Gardening, Wood or Metal Work, or (in the case of girls) Domestic Science.

16. The interests of the Colony are so bound up with agriculture that the question immediately arises—how is this fact to be reflected in the work of the schools? This will be considered fully in the chapter of our report dealing with higher education. So far as the primary schools are concerned their function will be to give elementary instruction in Nature, Study and to develop a sound system of practical work in school gardens.

17. There is no doubt from the evidence of the teachers and others that the working of the educational system is greatly hampered by the general failure of

pupils to attend regularly. The average attendance for the last statistical year was 65%. Irregularity of attendance at once reduces the efficiency of the educational machinery by more than a third. There are, of course, climatic causes which seriously interfere with attendance in many areas, but after making due allowance for these we are convinced that the figure representing the average attendance in many districts, and in the Colony as a whole, can be greatly increased by putting the existing law into general operation, and by strengthening it in certain directions. We recommend, therefore:—

- (a) that all circulars tending to discriminate between East Indians and other races be withdrawn; and
- (b) that the operation of Ordinance No. 3 of 1876 be strengthened towards
 - (i) defining "efficient elementary instruction" as attendance at every elementary school session; (ii) increasing the pecuniary penalties for non-attendance; and (iii) making proof of the cause or causes for the absence of a child from school lie on the person alleging the same.

18. These amendments would leave untouched the present age limits for compulsory attendance (6 to 14 years in Georgetown and New Amsterdam, and 6 to 12 elsewhere). We are, however, of opinion that as soon as practicable the age for compulsory attendance at school should be fixed by law at from 6 to 14 years for all parts of the colony. If this is not done, the children of all areas except Georgetown and New Amsterdam, will be withdrawn from school at the very age when they are most likely to benefit from the contemplated changes in the curriculum.

19. It has been brought to our notice that in Georgetown a large number of children are educated in private schools. Many of these schools are loosely described as "secondary" schools although they exist for the purpose of giving primary education to children whose parents do not desire them to attend the state-aided primary schools. In the interests of parents and children alike, we consider that the time has come to bring private schools under some supervision, and we therefore recommend:—

- (a) that it be the duty of the secretary of the Governing Body, or, if there is no Governing Body, of the head teacher, of every school not in receipt of grants from public funds, to furnish to the Commissioner of Education such particulars concerning the school as may from time to time be deemed necessary by the Commissioner;
- (b) that, in respect of schools existing if and when a regulation to the above effect comes into force, the required particulars be furnished within three months thereafter;
- (c) that, in respect of schools that may be opened thereafter, the required particulars be furnished not less than three months before they are opened;
- (d) that the Commissioner of Education, or the Surgeon General, or officers of their Departments, be empowered to inspect these schools from time to time and to report thereon; and
- (e) that, as a result of the reports, the Department of Education publish annually a list of private schools which have been certified as efficient during the previous year.

(In addition to the private schools giving general education of a primary or secondary type, we consider that the same principles should be applied to schools giving instruction in Typewriting and Shorthand).

20. During our sittings we have been asked to express an opinion on the proposal to establish an Industrial Home for Girls. We recommend that the report, dated 24th June, 1924, of the Committee which dealt with this subject be approved, subject to provision being made for the general control of the Home by a Governing Body of three members, nominated by His Excellency the Governor. We consider also that an orphanage or similar institution is required, which, by housing and educating homeless children, will bring them under beneficial influences and so prevent their becoming subject to legal penalties of any kind.

II.

HIGHER EDUCATION—SECONDARY AND TECHNICAL.

1. The first question which arises in connection with higher education is the future of Queen's College. There is an obvious need for the development of higher education on the technical side, and we have had to consider whether the present organisation of Queen's College should be so radically altered as to make the College the centre of technical, as well as of secondary education. Our opinion is that it would be well to continue in the colony an institution which provides for boys a sound general education of a definitely secondary type. There should be some revision of the present curriculum in order that it may conform more closely to modern requirements, particularly in regard to the teaching of Modern Languages and Drawing. We also consider that the courses in Science might very well be revised. With these objects in view we recommend:—

- (a) that Queen's College continue as a Government Institution as at present organised; the number of places open to pupils from primary schools, entitled to free tuition, to be not less than five nor more than eight in any one year;
- (b) that, in order that the Principal may have ample time for supervision, an additional master be appointed, qualified to teach at least one foreign language;
- (c) that provision also be made for the teaching of Drawing to the lower forms; and
- (d) that class-room accommodation and the vote for the upkeep of grounds, at present inadequate, be increased.

2. To meet new requirements, it will be necessary to strengthen the staff, and we therefore recommend:—

- (a) that there be (i) five assistant masters qualified to take higher work in either Classics, Modern Studies, Mathematics or Science, of whom, if proved efficient, three shall receive £450 per annum for two years, rising after that by annual increments of £25 to £600, and two £450 per annum for two years, rising by annual increments of £25 to £550; and (ii) three assistant masters, one of whom shall be qualified to give oral instruction in at least one foreign language, and one qualified to teach Drawing—at a salary of £300 per annum for two years, rising after that by increments of £15 to £350, if proved efficient; and
- (b) that the post of Deputy-Principal be abolished, and the Principal be empowered to nominate one of the senior masters to act as Principal during his absence.

3. Our attention has been drawn to the question of making arrangements at the College to accommodate boarders from the country. We consider that this is a matter for the Department concerned. The emoluments of the Principal of Queen's College and the question of the provision of free quarters for that officer came under our notice during debate and were the subject, in the circumstances, of a separate communication to Your Excellency from our Chairman. It seems unnecessary, therefore, to make further reference to those matters, other than to reiterate the statement that the Commission as a whole is of opinion that the emoluments of the Principal should be substantially increased, one element in increase being entire freedom from payment of rent for his quarters.

4. In 1922 a committee recommended that a Government Secondary School for Girls should be established in Georgetown. In view of the recommendations which we make below with reference to the grants to the girls' secondary schools already in existence, and to the establishment of a technical school, we do not think it necessary to endorse that recommendation. Should, however, our recommendations not be acted upon, then it will be absolutely necessary to establish

a Government Secondary School for Girls. In any event, the present method of giving grants-in-aid to the girls' secondary schools and the mixed schools which already exist should be re-considered. It is not based on any system, and should at once be made definite and uniform. Our proposals will be found in Chapter V.—'Finance.'

5. With reference to the curriculum of schools receiving grants in aid of higher education, we are of opinion that most of them adhere too strictly to the secondary type, the course consisting normally of English Language and Literature, Geography and History, Mathematics, and at least one language other than English. We consider that our system of higher education, to suit the needs of the colony, should emphasise the practical side at the expense of the literary side, *e.g.*, all schools should teach Science (including Hygiene) and Physical Training. The curriculum for girls should include a course of domestic subjects such as Cookery, Laundry, Needlework and Housekeeping, and the course for boys, manual training in wood or metal.

6. There remains the question of technical education. Practically no provision exists at present, although it is generally recognised, that so far as the interests of the colony are concerned, technical education is as important as, if not more important than, higher education of the purely literary type. To meet this urgent need we recommend that there be established forthwith in Georgetown a Technical School which, in addition to providing instruction in English and Mathematics, shall cater for the special need of boys and girls who will enter skilled trades (including agriculture) either as apprentices or otherwise; and shall provide suitable and adequate training for boys and girls who intend to adopt a commercial career, and for girls, training which will fit them to discharge domestic duties.

7. The school we have in mind is what is generally known as a "junior" technical school, which trains pupils between the ages of 12 and 15. It may be possible in the future to build on this foundation a senior technical school for older and more advanced pupils, who will undertake courses similar to those given in the technical colleges of Great Britain. The work of the local school would fall into four main departments:—

(i) a general course (consisting of English, Mathematics, Physical Training and Hygiene) which would be taken by all pupils; (ii) an agricultural course, in which the main subjects would be Natural Science and Agriculture, Manual Work and Book-keeping; (iii) an industrial course in which the main subjects would be Manual Work (in wood and metal) Physical Science (chiefly Mechanics and Electricity), Building Construction and Book-keeping; and (iv) a commercial course in which the main subjects would be Shorthand, Typewriting, Book-keeping, Geography and a modern language. All girls would receive instruction in Domestic Subjects, and in addition, there would be a more intensive course in these subjects for girls intending to become housekeepers, sick nurses, or qualified nurses of children.

8. From these courses more advanced and specialised ones would, no doubt, branch out as occasion arose, especially in the direction of Agriculture, Engineering and other forms of applied science, but it is essential, in the interest of efficiency and economy, to establish a certain number of full-time day courses on a firm basis before attempting too ambitious a programme.

9. The same limitation would not necessarily apply to evening continuation classes for adolescents and adults already engaged in industry. A wider field could be covered in these courses, both in general and in vocational training. The staff of the day school would, where necessary, be augmented by part-time teachers actually engaged in the occupation concerned.

10. In regard to technical education outside Georgetown the first step is to establish the advanced divisions of the colonial schools referred to in Chapter I. paragraph 15. Along with these should be inaugurated a system of evening

continuation classes, providing, together with the necessary general education in English and Arithmetic, practical instruction in various occupations suitable for the district. These advanced divisions and evening classes would form the nuclei of the rural technical schools suggested by Mr. Thorne in his memorandum.*

11. The question of agricultural training is so important in this colony that it calls for special mention. In framing our recommendations under this head we have been guided largely by the evidence of Sir John Harrison.* In the primary schools, agriculture must be approached through Nature Study and School Gardening. An essential preliminary to success is a supply of interested teachers trained on sound lines. The experience of the past shows that any attempt to make school gardens universal without full preparation in this important respect is doomed to failure. We recommend therefore :—

- (a) that in all courses of training for teachers due attention be given to Nature Study, and that as soon as qualified teachers are available, the subject be taught as an integral part of the curriculum in all state-aided primary schools ;
- (b) that selected teachers (men or women) who show special aptitude receive a course in practical gardening suitable to the Colony and be placed in charge of gardens, which shall be accessible to groups of schools in districts which are not served by the existing district gardens ; and
- (c) that school gardens may, with the approval of the Commissioner of Education, be established in connection with isolated schools if a qualified teacher and other requirements are available.

12. We consider that the science taught in the secondary schools should be mainly Natural Science. The general intention is to train the pupils in habits of observation and accuracy, and in scientific method in relation to phenomena which are part of their environment. With this in view, we recommend that in secondary schools the science course for boys and girls should include the study of plant and animal life, together with such instruction in Botany, Chemistry and Physics as is necessary thereto, to be followed (where required) by a specialised course in one or more of those subjects.

13. In the Technical School there should be a more definite approach to Agricultural Science, but it must be remembered that the pupils are still between the ages of 12 and 15, and that their education in other subjects is being continued on the lines indicated in paragraph 7 of this chapter. We recommend, therefore, in respect of the Technical School :—

- (a) that the science course for pupils who propose to take up agricultural pursuits, consist of a general course on lines similar to that in the secondary schools, with greater attention to the agricultural or horticultural application of the scientific principles taught ; and
- (b) that technical instruction be given in the following occupations :—
Poultry farming, dairying, pig-rearing, bee-keeping.

14. We have been asked to express an opinion on the subject of the education of medical students, with reference to the proposal to establish a Medical College at Jamaica. (See Appendix E.) We concur in the views of the Surgeon-General, and recommend that no subsidy be paid to the proposed Medical College at Jamaica, but that, in order to meet the needs of intending students of Medicine and Science, there be, in at least one institution in the Colony, courses in Physics and Chemistry up to the standard of the Higher Certificate of the Oxford and Cambridge Joint Board, and that in addition, provision be made for a course in elementary Biology, which shall be recognised by one or more of the bodies in Great Britain which license medical practitioners.

* Not printed.

15. In addition to maintaining, wholly or in part, the institutions for higher education, the Government has in the past encouraged higher education by means of scholarships. We consider that this system should continue, subject to the general proviso that the number of examinations for scholarships be reduced to a minimum, and that in both primary schools and secondary schools, the preparation of candidates for scholarships be not allowed to prejudice in any way the general training of the majority of pupils.

16. We have already recommended that, from the pupils of the primary schools, there should be selected the children between the ages of 11 and 12 who are considered likely to benefit by a course of higher education. The means of selection should, if possible, be the general written tests in English and Arithmetic, (referred to in paragraph 13 of chapter I.), supplemented by an oral test. If the holding of this oral test is not practicable on account of numbers, there should at least be an interview of the candidates who have qualified in the written test. On the results of these tests, the Blair Scholarship and the Government Primary Scholarships should be awarded.*

17. The number of Government Primary Scholarships appears to be sufficient to meet present requirements. Five are provided for Demerara, four for Berbice and three for Essequibo—twelve in all. For these there qualified in 1924, two boys and three girls in Demerara, only one girl in Essequibo and no boy or girl in Berbice—a total of six. We hope that when it has become possible, by means of a training college, to supply qualified teachers for the primary schools the number of pupils who reach the scholarship standard will be considerably increased.

18. Although it appears from the figures quoted that no increase in the total number of these scholarships is required at present, the scholarships for which there is no qualified candidate in the county concerned should become available for a qualified candidate in another part of the colony, who should, of course, be allowed to attend a recognised school in his own county. The need of this is illustrated by the fact that in 1923 there were seven qualified candidates in Demerara who received no scholarship, although in the same year three scholarships lapsed in Berbice. No scholarship had at that time been established for Essequibo.

19. As soon as the Technical School is established any Government Scholarship should be tenable there. As the school will be providing a form of education which is new in the colony, the advantages of which may not be generally recognised for some time, we recommend that up to 60 free places (30 for boys and 30 for girls) be awarded annually to candidates who qualify at the primary school test. Fee-paying pupils should also be admitted, subject, of course, to their satisfying the headmaster that they are sufficiently advanced to benefit by the course they desire to take.

20. To meet the needs of pupils who have already begun a course of higher education the Government Junior Scholarship has been established. We recommend that the Mitchell Scholarships, which occupy an ambiguous position at present, should be definitely placed in the same category by awarding them on the results of the same examination. As candidates will in course of time be forthcoming from the Technical School as well as the secondary schools, we recommend:—

- I. (a) that the Mitchell and Government Junior Scholarships be awarded on the results of an examination in English, History (or Geography), Mathematics, and at least two additional subjects selected from the following:—Latin, French, Greek, German, Spanish, Portuguese, Drawing, General Science, Manual Work, Domestic Science, Book-Keeping, and Shorthand with Typing—the standard to be that of the papers for lower forms set by the Oxford and Cambridge Joint Board (No. 4); and

* The holders of Government Primary Scholarships receive free secondary education and a maintenance allowance.

- (b) that entries be restricted to candidates who satisfy the Commissioner of Education that they have been undergoing an approved course of higher education.

21. There already exists another form of state aid to technical education—the apprenticeship schemes under the Board of Industrial Training and the Agricultural Department respectively. These should be consolidated with a view to their being more successful in the future than they have been in the past. We recommend, that when the Technical School has been established, as many as possible of the apprentices be recruited from it, and that they be required to attend the school as part-time students during the period of their apprenticeship.

22. The need for apprentices in the building trades is particularly urgent, in order that a supply of craftsmen with a reasonable standard of skill may be maintained in the Colony. We recommend that the arrangements for the training of apprentices in an approved works under the supervision of the Director of Public Works, be made similar to those in force for the training of agricultural apprentices under the Director of Science and Agriculture. The chief difference at present between the two schemes is that the Department of Agriculture arranges for the housing and general supervision of the apprentices. We recommend that this method be adopted in respect of industrial apprentices also. We do not, however, consider that the apprentices under either scheme should be confined to Government Departments. Some should be placed with private employers who are willing to accept them, and who have the necessary staff and equipment to give them a thorough training in their trade.

23. Neither of the existing schemes provides for the training of young women. The number of skilled callings open to women is at present very small, being practically limited to the dressmaking trades. We anticipate, however, that it will be increased in the comparatively near future by the employment of more women in such occupations as tailoring, printing, book-binding and dispensing, in which large numbers are employed in other countries. There are also certain employments in agriculture for which women are eminently suited, *e.g.*, the cultivation of fruit and vegetables. We recommend that a scheme for the training of girls in suitable occupations be instituted on lines similar to those in force for the training of boys as agricultural and industrial apprentices. During the initial and experimental stage the scheme should be as elastic as possible, and should cover the widest possible range of skilled occupations.

24. Both the existing schemes compel the apprentice to save a part of his pay. We consider that this should be continued and encouraged. As Sir John Harrison has pointed out, however, the total amount which even the most thrifty apprentice can save is very small. We recommend, therefore, that agricultural and industrial apprentices (including girls) who satisfactorily complete their course of training, be given a grant in money or in kind, equal in value to the sum they have saved during their apprenticeship, for the purpose of enabling them to take up, within the Colony, any agricultural or industrial pursuit approved by the authority administering the scheme under which they have been trained.

25. We have considered the question of revising the regulations which at present govern the award of the Guiana Scholarship. The regulations have been criticised, chiefly on the following grounds:—

- (a) that they do not sufficiently encourage the study of applied sciences, especially Agriculture; and
- (b) that girls, although nominally eligible, have in fact, little or no chance of winning the scholarship.

We are of opinion that these defects, although serious, are not sufficient to justify the abolition of the scholarship or any radical alteration in the present regulations. There is nothing in them to prevent a candidate who wins the scholarship on

account of his attainments in Mathematics or Science from taking up the study of applied Science. We feel, however, that Agriculture and other sciences are so closely linked up with the welfare of the Colony, that this fact should be definitely recognised in the scholarship system, and we recommend :—

- (a) that a scholarship be established for the purpose of enabling one boy or girl, between the ages of 16 and 20, to undergo a course of study in Agriculture, or any other branch of applied science, at an institution of university rank within the British Empire, the successful candidate to be selected by a committee appointed for the purpose by His Excellency the Governor, and the proposed course and the institution selected to be approved by His Excellency ; and
- (b) that a sum be voted annually, to defray the cost of the student's fees for the approved course and other necessary expenses.

26. We are satisfied that at present girls are very seriously handicapped in competing with boys for the Guiana Scholarship. There is no organised teaching of girls beyond the school certificate, and there is no school for girls providing a course in Science (one of the branches in which the scholarship may be awarded) even up to the standard of this certificate. We hope that in due course these defects will be remedied, but so long as they exist we consider that there should be a university scholarship open to girls only. We recommend therefore :—

- (a) that a scholarship be established which shall be open to public competition, under regulations to be made later, for the purpose of enabling one girl, between the ages of 16 and 19, to undergo a course of study at an institution of University rank within the British Empire, the proposed course and the institution selected to be approved by His Excellency the Governor ; and
- (b) that a sum be voted annually, to defray the cost of the student's fees for the approved course and other necessary expenses.

27. In regard to the Guiana Scholarship itself, we consider one minor change necessary in order to prevent frivolous entries. Entries should be restricted to candidates undergoing a course of higher education approved by the Consultative Council.

III.

THE TRAINING OF TEACHERS.

1. The problem of providing a supply of adequately trained teachers is so important that we have decided to deal with it in a separate chapter, instead of including it under Higher Education, the division of the subject to which it naturally belongs. It is probably not realised by the Government or the community that the primary schools are at present staffed almost entirely by teachers who have not been trained for their work. Out of a total of 1219 teachers in the colony, only 64 have attended a Training College for Teachers. There are also 281 other certificated teachers who have qualified for their certificates of competency by examination, but without training of any kind beyond the pupil teacher stage. The rest are uncertificated teachers, who have not been trained and have passed no examination, and young pupil teachers. Whatever merits the pupil teacher system may possess as part of an organised system of training, it is thoroughly unsatisfactory when it stands alone, depending as it does, solely upon the knowledge and skill of the individual head teacher under whom the pupil teacher happens to serve. When these head teachers have themselves had no general education beyond what is provided in an elementary school, it is clear that the standard of education among teachers will tend to fall very rapidly. It is essential, therefore, that we should encourage in every possible way the employment of trained and certificated teachers.

2. Our general aims are to provide the pupil teachers with a better general education, and to establish a central institution in which the future teachers of the

Colony will undergo an organised course of training which will fit them for their work. We recommend therefore:—

- (a) that in order to obtain entrants of suitable type for the teaching profession, every effort be made to recruit as many pupil teachers as possible from the secondary schools, or from the technical school when established; or, if a sufficient number be not forthcoming from these sources, that, between the ages of 14 and 16, all pupil teachers in Georgetown, New Amsterdam, (and any other area in which arrangements can be made) receive full-time education of a secondary or technical type in an approved central institution;
- (b) that, between the ages of 16 and 18, all pupil teachers in the areas mentioned in paragraph (a), receive part-time education of a similar type, the rest of their time being spent in teaching practice in selected primary schools; and
- (c) that, between the ages of 18 and 20, all candidates who intend to become teachers attend a full time course of instruction in the central training college (attached to, and forming a separate and advanced branch of, the proposed technical school) which shall provide an appropriate course of training, both academic and professional, for all candidates who have satisfied the Commissioner of Education of their personal fitness in every respect.

3. It is unfortunately true that these arrangements will not completely solve the problem, especially in rural districts, the source from which every country of the world draws a large proportion of the most successful teachers. We hope, however, that it may be found possible to collect the rural pupil teachers at convenient centres for corporate instruction during at least a part of each year.

4. Closely connected with the question of training is the question of teachers' certificates. Three grades are issued at present—First, Second, and Third Class. A teacher may gain a First Class Certificate at the very outset of his career, before any one in authority has had a reasonable opportunity to gauge his true value. In practice the three grades do not correspond to any real difference in efficiency. To remedy these defects we propose to reduce the number of grades to two, and to attach greater importance to practical skill in teaching, in awarding certificates and eventually in appointing head teachers. We recommend therefore:—

- (a) that after 1st January, 1930, there be issued only two classes of teachers' certificates, to be called the Lower Certificate and the Higher Certificate, respectively;
- (b) that the Lower Certificate be issued to candidates who satisfactorily complete a course of training, or, until a Training Institute is in full working order, pass an examination in general and professional subjects, including a practical test in teaching, and that this certificate (or an equivalent approved by the Commissioner of Education) be one of the qualifications required for employment as a certificated assistant teacher in a state-aided primary school in the colony;
- (c) that the Higher Certificate be issued to certificated teachers who—
 - (i) have satisfactorily completed at least seven years' service in a primary school in the colony, or produce evidence of having completed a similar period in such other schools or countries as the Commissioner of Education shall consider equivalent thereto; and
 - (ii) pass a test in professional subjects, in which credit will be given for proficiency in one general subject on a higher standard than that required for the Lower Certificate; and
- (d) that, as soon as practicable, the Higher Certificate be made an essential qualification for appointment as head teacher in a state-aided primary school in the colony.

5. If these regulations come into force, it will be necessary for the Commissioner of Education to frame a scale of equivalents, in accordance with which the teachers already employed will be granted complete or partial exemption from the examination for the new certificates, according to the class of certificate they hold at present and the length of their service.

6. The examination of teachers for certificates of proficiency raises the question of the method of conducting public examinations in general. We are satisfied that the number of qualified examiners in the Colony is too small to meet requirements. Moreover, in the past, the duties of an examiner, never attractive, have been made less so by the very small fees paid—the figures for 1924 giving an average of 6 cents per paper for the Pupil Teachers' Examination, and 15 cents for the Teachers' Certificate Examination. An increase in fees will certainly have to be made, but it will not solve the question of the supply. The area of choice must be widened, either by co-operation with the West Indies, or by appointing examiners in Great Britain. We strongly favour the first solution, and recommend that steps be taken by the Governments of the Colonies concerned, to establish an inter-colonial Board of Examiners which will undertake this and similar examinations.

IV.

ADMINISTRATION.

1. When a definite policy has been adopted in each branch of education, its success or failure will depend to a large extent upon the administration which directs and controls it. It is probably not generally realised that, in addition to the two officers who are occupied solely with educational duties—the Commissioner of Education and the Principal of Queen's College—several other departments deal with educational matters. The Colonial Secretary is responsible for the conduct of the London Matriculation Examination. Onderneeming is a separate department, except that the farm comes under the Director of Science and Agriculture. A Board of Industrial Training (which has no connection with either of the existing Education Departments) is responsible for the training of industrial apprentices. The Surgeon General controls a small vote for education in matters of Public Health. We are of opinion that there would be a great gain in efficiency if all the educational activities of the State were directed by one department. We recommend, therefore:—

(a) that all educational administration be henceforth undertaken by, and concentrated in, the Department of Education; and

(b) that the Commissioner of Education be the chief executive officer for all types of education in the colony, except in respect of Queen's College during the tenure of office of the present Principal.

2. With reference to the relationship between the Board of Education and the Commissioner of Education, we consider that the present position is ambiguous and unsatisfactory. Opinion is divided as to whether the Board is executive or advisory, and it is difficult, if not impossible, to fix responsibility on either party. We accept the conclusions of Mr. Wynn-Williams, who has treated this subject at length, and we consider that the Board should be advisory both in name and character.* We recommend, therefore, that as part of the re-organised Department of Education, there be nominated by His Excellency the Governor, a Consultative Council whose function will be to consider, and to advise the Commissioner of Education upon:—

(a) the needs of the Education Department and the preparation of the Education estimates;

* We have made an exception in the matters of the dismissal of teachers, and the cancellation of their certificates. (See paragraph 7 of this chapter.)

- (b) the expenditure of all public moneys voted for educational purposes by the Combined Court, and all the necessary audits relating thereto;
- (c) any legal difficulties that may arise in connection with the supply of new schools, or the removal of any school from the annual grant list;
- (d) any alterations that may from time to time be found desirable in the code for primary schools, and the regulations for secondary, technical, agricultural schools or institutions, and for the training of teachers, before they are submitted to the Government for legal confirmation;
- (e) the conditions under which scholarships of all kinds are awarded, the need for, or desirability of holding, any external examinations, the kind of examination that would appear to be most suitable and appropriate, the general conduct and result of such examinations, and their effect upon educational policy; and
- (f) any questions, educational or otherwise, upon which the Commissioner may wish to seek advice.

3. We recommend also that the Commissioner of Education be *ex-officio* Chairman of the Council, that the Surgeon General be *ex-officio* a member, that two members be members of the Combined Court, and that in selecting the remaining members due regard be paid to their experience of, and their interest in, education.

4. The strengthening of the inspecting staff must be an essential part of any scheme of educational reform which is to prove effective. It will be the task of these officials to disseminate new ideas, as well as to carry out the work of inspection in the strict sense. We consider that the distribution of the inspectorate on a county basis will establish a definite tie between the schools and the inspectorate, which will emphasise the constructive side of the inspector's duties, and lead to the raising of the general standard of efficiency. We recommend therefore:—

- (a) that four competent and qualified inspectors (of whom one shall be a woman with qualifications in Domestic Economy and Hygiene), be appointed to the permanent Civil Service with as little delay as possible, —one to be resident in each county area—who, in addition to performing all the duties connected with the inspection of primary schools, shall be competent to inspect at least one branch of secondary or technical education, and shall be at the service of the Commissioner to discharge any other function, administrative or otherwise, that he may consider necessary; * and
- (b) that in the case of secondary, technical, agricultural schools or any other institution where higher or specialised education is given, the Commissioner be empowered, where no officer of the department has the necessary qualifications, to enrol a panel of inspectors who are qualified to perform the duties connected with the inspection of such schools.

In view of the very great importance of securing suitable inspectors from the outset, we consider that it would be a great advantage, if the services of Mr. Wynn-Williams could be utilised for the purpose of interviewing likely candidates who offer themselves in Great Britain.

5. At present, the duties of the inspectorate and the duties of the clerical staff overlap in respect of two posts—

- (i) the Assistant Inspector of Schools and Secretary, Education Board; and
- (ii) the Assistant Inspector of Schools and District Educational Officer.

* The distribution of personnel is a matter for the Department, but the following is suggested:—
 Senior Inspector, resident in Georgetown, responsible for Demerara;
 Second Inspector, resident in New Amsterdam, responsible for Barbice;
 Third Inspector, resident in, and responsible for, Essequibo;
 Fourth Inspector, (woman), resident in Georgetown, to assist where required.

When the four inspectors have been appointed, assistant inspectors will be no longer required, and the two part-time posts of Secretary, Education Board, and District Educational Officer, should be merged into one, that of "Administrative Officer." This officer would act as Secretary of the Consultative Council and as District Educational Officer, and be responsible to the Commissioner of Education for other duties of the same kind, which, although necessary and important, do not require the personal attention of an officer of high educational qualifications and long experience, *e.g.*, the secretarial work in connection with examinations, the custody of teachers' records, and the assessment of pay and pensions. This would have the great advantage of allowing the Commissioner of Education and the inspectors to devote most of their time and energy to the task which will occupy them fully for many years to come—improving the efficiency of the educational system. We recommend, therefore, that, in addition to the Commissioner and the inspectors, the permanent establishment of the Department of Education consist of the following :—

- 1 administrative officer (2nd class).
- 1 financial and statistical clerk (2nd class).
- 1 of each of the following grades :—
 - 4th class clerk.
 - 5th class clerk.
 - 6th class clerk.
- 3 school attendance officers.

6. The establishment of clerks and attendance officers indicated above already exists in the Department. It may have to be increased as the clerical work of the Department grows, but we consider that this question can be more satisfactorily dealt with by the Commissioner of Education, after the duties of the inspectorate and of the clerical staff have been separated as suggested in the foregoing paragraphs, and the Department has been running under the new conditions for some time.

7. The experience of the past has shown that it is necessary to define the powers of the Governing Bodies and of the Education Department, in respect of the appointment and control of teachers and pupil teachers in state-aided primary schools. At present, the powers of the Governing Bodies, who are the legal employers, are not subject to any real control by the Department. We recommend that the powers of the Commissioner of Education be strengthened in the following directions :—

- (a) that the appointment and promotion of all teachers and pupil teachers in state-aided primary schools be subject to the approval of the Commissioner.
- (b) that the Commissioner be empowered to require the Governing Body concerned to suspend from duty any teacher or pupil teacher, and to investigate any complaint made against him or her ;
- (c) that the decision of the Governing Body in respect of any complaint against any uncertificated teacher or pupil teacher be subject to confirmation by the Commissioner of Education, who may modify at his discretion the penalty proposed. Should the Commissioner require the dismissal of the uncertificated teacher or pupil teacher, and the Governing Body (or a majority thereof) not concur in this penalty, the Governing Body may appeal to the Consultative Council, whose decision will be final ;
- (d) that the decision of the Governing Body in respect of any complaint against a certificated teacher be subject to confirmation by the Commissioner of Education, who may modify at his discretion the penalty proposed. Should either the Governing Body or the Commissioner be of opinion that the certificated teacher should be dismissed, or that his or her certificate should be cancelled, the matter will be investigated by the Consultative Council, whose decision will be final ; and

(e) that any decision of the Consultative Council under paragraph (c) or (d) be an executive act of the whole Council, and not of the Commissioner alone.

8. We consider that the present method of disciplining teachers by fines has proved ineffective. It is impossible to measure in terms of money the harm which some offences do to the efficiency of the school, and to the reputation of the teachers as a whole. We recommend, therefore:—

- (a) that the practice of fining teachers be discontinued;
- (b) that for minor breaches of the regulations, teachers be reprimanded and the offence recorded on the teacher's certificate or record of service; and
- (c) that repeated or serious offences be punished by dismissal, or by the cancellation of the teacher's certificate.

V.

FINANCE.

1. An important problem of financial administration is the method of making grants to primary schools. The present method of giving a number of small grants to each school under separate heads is very cumbersome, and carries with it no guarantee of efficiency even in respect of the particular services for which grants are given.

We recommend:—

- (a) that the present system of giving separate grants for salaries, latrines, etc., be abolished; and
- (b) that in future, block grants be made to primary schools fulfilling the conditions of the Code in force for the time being, special importance being attached to—
 - (i) the maintenance of an efficient standard of education;
 - (ii) the payment of an approved scale of salaries for teachers;
 - (iii) the supply and maintenance of adequate and sanitary buildings, and suitable furniture and apparatus; and
 - (iv) the keeping of accurate accounts and records.

2. We consider it desirable that the Department should be in a position to reward financially schools which rise above the general level of efficiency in one or more respects. We recommend therefore:—

- (a) that in addition to the block grants made to all schools which reach a "satisfactory" standard of efficiency, an additional grant be made to schools which the officers of the Education Department consider "excellent" or "good"; and
- (b) that the purposes to which this grant is applied by the managers of the schools be specially approved by the Commissioner of Education.

3. As the primary schools exist for the purpose of giving primary education, they do not usually possess the staff or the equipment which would enable them to undertake successfully any branch of higher education. An attempt is frequently made to do so for the benefit of a few pupils, with the result that the instruction given to the majority of the children suffers, as it is naturally the most highly qualified and most experienced members of the staff who undertake the higher work. We recommend, therefore, that schools receiving grants in aid of primary education be not allowed to undertake higher education, unless they are specially recognised by the Commissioner of Education for that purpose.

4. We do not intend this to apply to instruction in Hindustani, the use of which should, we think, be encouraged among the East Indian population. The grants made in the past for this purpose have been negligible in amount, and there has been little or no vitality in the instruction given. For some time to come there will continue to be difficulties (owing to the lack of qualified instructors), unless the East

Indians bestir themselves in the matter. There are only 43 East Indian teachers and pupil teachers among the total of 1,219 teachers and pupil teachers employed in our primary schools, and the number of teachers of other races who qualify in an Indian language is necessarily small.

We recommend that an increased grant be made to primary schools in which regular and efficient instruction in one of the vernacular languages of India, is given to not less than 50 per cent. of the pupils in average attendance.

We consider also that instruction in Hindustani might very well be given in evening classes, in districts where East Indians are numerous. One of the practical difficulties of teaching it in the primary schools, is that the pupils are trying to learn two new languages at the same time—English and Hindustani—an undertaking which is beyond the powers of most children under 11 years. Another is that the East Indian children attend school very irregularly, and frequently leave before making any real progress in either language. These difficulties would not be so acute among voluntary students in evening classes, who would presumably have a desire to learn the language.

5. We have already pointed out (Chapter II. paragraph 3) the need for method and order in the grant-in-aid system as applied to schools providing higher education. We recommend :—

- (a) that all grants in aid of higher education be administered by the Education Department, and calculated as a capitation grant for each pupil over the age of ten attending an approved course of higher education, a bonus being given to the school in respect of each pupil satisfactorily completing a four years' course, and an increased grant to schools carrying out an approved course beyond that stage ;
- (b) that, wherever the number of pupils is less than 50, a block grant, not exceeding the maximum capitation grant for 50, be given to schools where a qualified staff and adequate buildings have been provided ; and
- (c) that it be one of the conditions on which a grant is given in aid of higher education, that every school so aided shall reserve a proportion of places for pupils selected by the Education Department, whose fees shall be paid, wholly or in part, from public funds.

6. We have considered the present method of calculating the salaries of teachers in primary schools. It is lacking in simplicity and certainty, the rate depending very largely upon a variable factor—the average attendance of the school. We have already stated (in Chapter III.) that we consider it essential to encourage in every way the employment of trained and certificated teachers, and this policy must be reflected in the method of payment. On the other hand, so long as the State permits the schools to employ unqualified teachers and pupil teachers in large numbers (at present they number about 70% of the whole personnel) it is clearly the duty of the State to ensure that a living wage is provided for those employed under its auspices. We recommend, therefore :—

- (a) that pupil teachers of ages 14 to 18 receive an allowance, in respect of which only one increase shall be granted (on passing an appropriate test about the age of 16) ;
- (b) that teachers in training, of ages 18 to 20, be granted a fixed allowance, returnable by those who do not carry out their undertaking to teach in a primary school in the colony for at least two years immediately after the period of training ; and
- (c) that uncertificated teachers be paid at fixed rates (not subject to annual increment) calculated with general reference to the current cost of living.

7. Teachers who have qualified for certificates of competency by undergoing a course of training or by examination, must be placed in a different category from those referred to above. Certificated teachers have definitely taken up their life's

work, and it is desirable to reward financially the increased efficiency which we expect from those of higher qualifications and longer experience. We recommend therefore :—

- (a) that an adequate initial salary be fixed for the lowest grade of certificated assistant teacher without experience, and annual increments up to 15 in all be granted, the first accruing after two years efficient service ; and
- (b) that an additional sum be granted to—
 - (i) the holder of a higher grade of certificate, or other special qualification ;*
 - (ii) the first assistant in a school in which the Commissioner is satisfied that an appointment of this kind is necessary ; and
 - (iii) the holder of any other post which, in the opinion of the Consultative Council, involves special responsibility ; *e.g.*, the instructor of pupil teachers in an area where there is no pupil teachers' centre.

8. In regard to the salaries of head teachers, we have considered the teachers' recommendation that no part of the head teacher's salary should depend in any way on the average attendance. While fully sympathising with the intention of that recommendation, we cannot see any equitable means of eliminating this factor altogether. We agree that there should be no mechanical connection between the number of pupils in a school and the head master's salary, but some regard must be paid to the increased responsibility attached to the headship of a large school. We recommend, therefore, that the salaries of head teachers be paid according to an approved scale, in which the rates shall rise by fifteen annual increments granted for efficient service, and which shall take into account the class of certificate held by the teacher (Lower or Higher), and the grade of the school.

The Commissioner of Education would, every three years, place each school in one of three grades, the average attendance, the authorised accommodation, and the number of teachers employed, being three of the factors to be taken into consideration by him.

9. We have considered the representations of the teachers regarding their disabilities under the Teachers' Pension Ordinance, and recommend that the present limit of 50% of last salary drawn (imposed by section 3 (e) of the Ordinance) be cancelled, and the pension calculated according to length of service and class of certificate.

10. It will have been observed that we have not at any stage of this report indicated the probable cost of introducing our proposals. We have not considered it our duty to do so, as the first step, we submit, is for the Government to determine an educational policy and then to consider its cost. We realise, of course, that financial conditions will prevent the simultaneous introduction of all the necessary reforms. Like Mr. Wynn-Williams, we anticipate that the changes will necessarily be spread over a considerable period which, we hope, will not exceed four years.

11. It is difficult to make a choice on grounds of urgency among so many necessary reforms, but radical changes in primary education are clearly dependent upon attracting suitable teachers by improved pay and prospects, and upon training them properly for their duties ; and the maintenance of reasonable sanitary conditions in the schools is dependent on the provision of suitable buildings and out-houses in the first instance. In higher education the most obvious gap is the lack of a technical school, and in general, it is clear that the State must assume more direct responsibility for the education of its future citizens than it has done at any period in the past.

12. In conclusion, we wish to draw attention to the necessity of awakening the public conscience to the importance of a sound system of education, and to represent as strongly as lies in our power the need for "root and branch" reform. The

* A proposal that the existing trained teachers should be considered as having a special qualification within the meaning of para. 7 (b) (i) was discussed, and approved by a majority of votes.

chief lesson of the past is that half-hearted measures are useless, and mean waste of both money and energy. We recommend to the special attention of the Government and the community the following passage in Mr. Wynn-Williams' memorandum :—
 "No tinkering with the present machine can possibly be effective; reconstruction alone will serve the very necessary purpose of bringing the Colony abreast of modern conditions and development."

* (Signed) CHARLES MAJOR, Chairman.
 R. E. BRASSINGTON.
 EUSTACE G. WOOLFORD.
 PHILIP N. BROWNE.
 A. B. BROWN.
 JOSEPH A. LUCKHOO.
 W. BAIN GRAY, Major.
 E. R. D. MOULDER.
 EDGAR BECKETT.
 O. HAYDOCK WILSON.
 B. KILLION.
 R. H. CARR.
 LOUISA B. HAMPDEN KING.
 EMILY J. BASKETT.
 A. A. THORNE.

1st May, 1925.

*This report contains the opinions of the Commission as a whole, which, in a number of instances, have been arrived at by a vote of the members present. The signatures of members have therefore been appended subject to the reservations regarding particular points which are contained in the following notes.

1.

DENOMINATIONAL SCHOOLS.

We, the undersigned, members of the Education Commission recently appointed, conversant with school problems after many years of experience, while approving of the greater number of recommendations mentioned in the report, wish to record our disapproval :—

- (a) of the proposal to destroy the denominational system altogether, as being unjust to a large number of parents who desire their children to be educated under certain religious influences.
- (b) of the proposal to erect Colonial Schools in large numbers which it will be difficult to conduct in fair competition with the Denominational Schools. The expense for sites, materials, and labour will be enormous, and we think unjustifiable in the present impoverished state of the Colony. A fraction of the cost, spent upon the Schools already in existence, will render them efficient for years to come.

We may mention that in Trinidad, these Colonial Schools, if we are rightly informed, have not justified their existence in competition with the Denominational Schools.

- (c) of the proposal to reduce the Governing Body of the Denominational Schools to a cipher.

We suggest the erection of ONE Colonial School to be put *in fair competition* with the Schools already existing, with equal scale of salaries for teachers, same hours, etc., before embarking on a costly venture which we cannot at present afford.

We heartily favour all that can be done for the training of teachers, and for the trade and technical schools contemplated.

A. B. BROWN.
O. HAYDOCK WILSON.
B. KILLION.
EMILY J. BASKETT.

28th April, 1925.

2.

THE CONSULTATIVE COUNCIL.

(A)

I dissent from the report of the Commission on the subject of the Consultative Council which is to replace the existing Board of Education. (*Vide* Chapter IV, paragraphs 2 and 3 *et passim*.)

1. It is really the same body under another name—the advisory nature of its functions being illusory. There is a long and formidable list of matters which the Commissioner of Education is bound to refer to the Consultative Council, and concerning which, in practice, he will be bound to accept their opinion, unless he is prepared to be continually making appeals to higher authority.

2. In my opinion, the function of a strictly "Consultative" Council should be to consider, and advise the Commissioner of Education upon, any question, educational or otherwise, concerning which he may wish to seek their advice. The personnel of such a Committee should consist of not more than seven members. No member of the Combined Court should be included in that capacity, as new Codes, and other documents requiring legislation, would come before the Court in the ordinary course. It should contain representatives of agriculture, of other industries, of the school managers, and of the teachers, but not officers of the Education Department, nor Heads of Departments whom the Commissioner can consult in the usual course of his official

duties. It is clearly unnecessary to set up a Consultative Council to ensure that the head of the Education Department will consult the Director of Public Works when a new school is to be built, or on any other occasion when the latter has special knowledge of the problem in hand. If, as proposed in the report, the Council is to direct the policy of the Education Department and deal with administrative matters, such as the dismissal of teachers, the Commissioner of Education becomes definitely subordinated to the heads of other Departments—a situation bristling with difficulties for the Commissioner, and highly undesirable from the point of view of the others.

3. I wish, however, to make it clear that I consider it quite unnecessary to create a committee of any kind to direct the Education Department. The Education Code for primary schools, and any similar general regulations affecting higher education, should receive the sanction of the Legislature, not merely of an Education Board. The estimates of the Department are subject to approval in the ordinary way, its accounts are subject to the usual audits, and the Commissioner of Education is not less responsible to the Combined Court than is the head of any other Department.

4. Any impartial person who reads the history of Education Boards in British Guiana, as set forth in Mr. Wynn-Williams' memorandum or elsewhere, must realise that the record of these Boards is not a happy one. The attempt, in the present report, to compromise between an executive and an advisory Board is open to all the objections which have arisen in the past. Boards and Committees have been the home of cross-grained conservatism and *laissez-faire*. Either of these policies (if they can be so called) would be equally fatal at the present juncture.

5. I suggest to the Government and the community that the time has come to show more imagination in their administrative arrangements, to cease playing for safety, and to take a little risk for the sake of a greater gain. The Commissioner of Education should be given a free hand (subject to the normal safeguards which apply to all Departments) for at least five years, while the system is being reorganised. If he is to be called upon to convince a Consultative Council (in addition to the Government and the Combined Court) of the wisdom of every step he takes, then two Commissioners will be required, one to do the propaganda, and one to do the constructive work of the Department. No doubt a Commissioner entrusted with full powers would make mistakes, but I am convinced that at least something would be done, and that his mistakes would not be more numerous or more serious than those of a committee, however well intentioned. It does not require the gift of prophecy to foretell that to continue the Board of Education under any name whatsoever, is to ensure, as far as is humanly possible, that in 1945 the educational system of the Colony will be where it is in 1925.

W. BAIN GRAY, Major.

30th April, 1925.

(B)

We are of opinion that the Consultative Council should be executive and not advisory. Advisory boards had been tried in the past; they were most unsatisfactory and proved failures in the end. Members of a board should see questions at different angles and after discussion if the majority came to a decision it should be given effect to. It is the only conceivable way in my opinion any Board or Council will work with any success. I think some high Official as the Colonial Secretary, or one of the Judges of the Supreme Court or the Attorney General should be appointed Chairman of the Council.

Mr. Wynn-Williams discussed this question with his usual ability and energy in his report, and he came to the decision which he did with some hesitation, viz. :—

That the Consultative Council should be advisory.

He says an Administrator is born, nevertheless he recommends the Commissioner to be Chairman of this Advisory Council forgetting that a Legislature never legislates for a born Administrator but for ordinary individuals possessed of ordinary intelligence.

It should be borne in mind that Advisory Boards failed in the past where they had to deal with one branch of education only, and it is now sought to bring into correlation all the various branches of education so that they should co-operate and harmonise as a whole, such a Council would require men of long experience, intelligence, and sound judgment to take part in its deliberations, and such men would not be willing to take part in the deliberations of an Advisory Council.

A. B. BROWN.
JOSEPH A. LUCKHOO.

29th April, 1925.

(O)

I do not agree that there should be a Consultative Council, whose functions would be to advise the Commissioner of Education. I consider the Commissioner should be unfettered—without any Board or Council whatever; advisory or consultative—in the same manner in which the Hon. the Surgeon General, the Inspector General of Police, and other Heads of Departments are responsible to no Boards or Councils, but direct to His Excellency and the Honourable the Colonial Secretary. So too, the Commissioner of Education should owe his responsibility direct to the Government. In the past, the Head of the Education Department was the Inspector of Schools; not, as at present, Commissioner of Education.

EDGAR BECKETT.

28th May, 1925.

3.

TRAINED AND UNTRAINED TEACHERS.

With reference to Chapter V, paragraph 7 (b) (i) and footnote, we dissent from the view of the majority of the Commission, that teachers now in employment, who have gained their certificates after a course of training in Jamaica or Barbados, should be regarded as holding a higher qualification than those who have gained their certificates by local examination.

1. Like our colleagues, we hold that in future, every possible means should be taken to train our teachers properly, and to differentiate in salary between trained and untrained teachers. In the past, however, the State has made very inadequate provision for the training of teachers (by sending a very small number each year to colleges in Jamaica and Barbados), and there is, in our opinion, no justification for putting such a high premium on a teacher's certificate gained after a course of training, at a period when the normal method of obtaining one was by examination. To make this distinction after the State has for many years recognised the main body of teachers as certificated teachers for all purposes, appears to us a piece of retrospective legislation of a very undesirable kind. It would benefit a small number of teachers, (64 certificated teachers have been trained, and 281 have not been trained) without raising the general standard of efficiency; on the contrary, by creating an invidious distinction and dividing the ranks of the teachers, it would tend to lessen the efficiency of the whole body.

2. We consider, therefore, that the certificated teachers who have been trained, and desire to obtain higher status and salary under the new arrangements, should qualify for them in exactly the same way as teachers of the same service, who hold certificates of the same class.

JOSEPH A. LUCKHOO.
W. BAIN GRAY, Major.

29th April, 1925.

4.

COMPULSORY ATTENDANCE.

If any change is made in the age-limits of compulsory attendance at school, the upper limit should not exceed 13 years, except in Georgetown or New Amsterdam.

R. H. CARR.

1st May, 1925.

5.

TECHNICAL EDUCATION.

I see a danger that the Technical School may place too great a stress upon the scientific side of training rather than the practical. In short, at the present time, a Technical School is required to train boys as well-equipped workmen. To accomplish this, we should have to import certain master-workmen from abroad.

The point to be emphasised is, that a boy or girl can 'make' or 'create,' something, rather than possess a mere rabble of words. Girls could be taught watch-repairing, printing, book-binding, the keeping of bees, house-keeping, nursing the sick, the qualifications for a nurse for children, the making of plain and useful clothes, making of panama and other hats, basket-making, dispensing of medicine.

We should aim at turning out boys as skilled carpenters, plumbers, engine-drivers, blacksmiths, saddlers, electricians, etc.

The particularly clever boy, who is going to be something higher, will soon climb the "topmost rung," and if he can use his hands at any trade, or any 'gentle manufacture,' he will prove all the more valuable whatever his profession may be.

Paragraph 21.—With respect to the apprenticeship scheme for industrial training, I should like to see a vigorous and rigorous system of apprenticeship (somewhat on the lines of the old apprenticeship system in England) in this Colony, not only in connexion with the Public Works Department, but also with private employers.

Paragraph 23.—In addition to the cultivation of fruit and vegetables, I would include poultry raising.

6.

ADMINISTRATION.

I consider that all educational matters should be administered by the Commissioner of Education. All matters connected with agricultural education should, however, be under the control of the Director of Science and Agriculture.

I see no reason at all why Queen's College should be exempted during the tenure of office of the present Principal. If the principle is correct, it should be adhered to, irrespective of individuals.

7.

INDUSTRIAL HOME FOR GIRLS.

As to the proposal to establish an Industrial Home for Girls I am of opinion, that the whole control of such a Home, should be entirely in the hands of the Government.

EDGAR BECKETT.

28th May, 1925.

APPENDIX A.

EDUCATION COMMISSION.

Dates of Meetings and Attendance of Members.

APPENDIX A.

DATES OF MEETINGS.

1924.	
November.	17th, 18th, 21st, 24th, and 25th to the 28th (both inclusive)
December.	8th, 10th, 11th, 15th, 18th, 19th, 23rd, 30th, and 31st.
1925.	
February.	23rd to the 26th (both inclusive).
March.	4th, 11th, 12th, and 18th.
April.	15th, 16th, and 17th.

ATTENDANCE OF MEMBERS.

	No. of meetings	...	28	No. of attendances.
Sir Charles Major, Kt., Chief Justice	28
The Hon. R. E. Brassington	11
The Hon. E. G. Woolford	17
The Hon. P. N. Browne, K.C.	11
The Hon. A. B. Brown	15
Mr. J. A. Luckhoo, K.C., F.R.	22
Major W. Bain Gray, Commissioner of Education	28
Mr. E. Wynn-Williams, His Majesty's Inspector of Schools (left the Colony on 8th January, 1925)	17
The Principal of Queen's College	28
Mr. E. Beckett, Superintendent, Onderneeming Industrial School	14
The Rev. Canon O. Haydock Wilson	23
The Rev. Father B. F. Killion	24
Mr. R. H. Carr. (left the Colony on 22nd March, 1925)	17
Mr. G. R. Reid. (" " 24th February, 1925)	11
Miss L. B. Hampden King	28
Miss E. J. Baskett, Principal, Girls' High School	24
Mr. A. A. Thorne	20

APPENDIX B.

EDUCATION COMMISSION.

Minutes of Meetings.

MINUTES of the First Meeting of the Education Commission held at the Court of Policy Hall on the 17th November, 1924, at 9.30 a.m.

PRESENT :

Sir CHARLES MAJOR, K.T., Chairman.
The Honourable R. E. BRASSINGTON.
The Honourable E. G. WOOLFORD, K.C.
The Honourable P. N. BROWNE, K.C.
The Honourable A. B. BROWN.
Mr. J. A. LUCKHOO, K.C., F.R.
Major W. B. GRAY, Commissioner of Education.
Mr. E. WYNN-WILLIAMS, His Majesty's Inspector of Schools.
Mr. E. R. D. MOULDER, Principal, Queen's College.
Mr. E. BECKETT, Superintendent, Onderneeming Industrial School.
The Reverend Canon O. HAYDOCK WILSON.
The Reverend Father B. F. KILLION, S.J.
Mr. R. H. CARR.
Mr. G. R. REID.
Miss L. B. HAMPDEN KING.
Miss E. J. BASKETT, Principal, Bishop's High School for Girls.

I.—The Commission.

The appointment of the Commission was read as gazetted "Official Gazette" No. 20 dated 15th November, 1924.)

II.—Documents.

The following documents were handed to every Commissioner :—

- (1) A Memorandum by the late Commissioner of Education dated 5/5/24 with a list of matters suggested for consideration.
- (2) Annual Report, Education Department, for the year 1923.
- (3) The draft of a Press Notice for invitation of witnesses from the Public.
- (4) A draft list of special witnesses.
- (5) Copy of Education Code as amended to date.
- (6) Diagram showing the Roadside and Riverside Schools of the Colony.

III.—Special List of Witnesses.

The Chairman inquired whether in view of the very definite instructions which the Commission had received from the Governor to proceed with and to conclude its deliberations as expeditiously as possible in view of the forthcoming Session of the Combined Court, and so as to permit of Mr. Wynn-Williams returning to England shortly, the Commission would add or take away from the list of suggested witnesses.

It was decided to add to the list the Surgeon General or a responsible officer of his department; Mr. M. L. R. Andrade, as suggested by Mr. Woolford; Mr. F. O.

Low, President of the Chinese Association, as suggested by Mr. Luckhoo; Rev. Haas, as suggested by Mr. Moulder; Rev. A. M. Hale, M.A., as suggested by Mr. Woolford.

It was further decided to defer the question of selecting a witness from the East Indian Association.

Removed from the list—Principal, Berbice High School.

As regards the Commission it was agreed on the suggestion of the Honourable P. N. Browne to ask His Excellency to add Mr. A. A. Thorne, M.A., to the Commission. Later the Chairman intimated that His Excellency had consented to do so.

IV.—Opening of the Commission by the Governor.

His Excellency Sir Graeme Thomson, K.C.B., then made his appearance and opened the Commission speaking as follows:—

“Mr. Chairman: In opening this Commission I desire to say how much we welcome in our midst the new Commissioner of Education who is a gentleman of high scholastic education, and Mr. Wynn-Williams who, as one of His Majesty’s Inspectors of Schools, has been specially selected to assist the Commission in its deliberations. I thank also most heartily the very busy gentlemen who have consented to serve on this Commission. I make no apology in asking them to join in our deliberations because the question of education is of such great importance.

At the outset I may say that there is no purpose in the colony for which it is easier to get funds than for education. The Combined Court never grudges money for this purpose. I think that everybody in the colony who has devoted any attention to this subject has the conviction that the money has not been spent to the best advantage. Even assuming that the curriculum is as perfect as it can be, the results are not satisfactory. Take this year for instance, in the last Primary Scholarship Examination less than 10% secured a bare pass in what can only be described as a very simple examination. At the moment our record is not more encouraging in the Secondary School. I am not imputing blame to anybody, but we have not found a single scholar even from Queen’s College closely approximating to scholarship standard.

In the result we have not been able to award the Guiana Scholarship and several Primary Scholarships have lapsed. I do not think the colony can be proud of that record. I am convinced, and my colleagues also, that the curriculum is not what it should be. We have to remember that this is primarily an agricultural colony, and that some 90% of the boys and girls have to work with the hands and that very little is done to educate the youth of the colony for the future. On the contrary; I have found when speaking to parents that their ambition is to turn their children into lawyers, doctors, or Civil servants. These professions are already overcrowded. I have in mind what has happened in India or the East where education is too bookish and scholastic in form. The result is that a great many semi-educated and highly educated youths are being turned out in India, Ceylon, and other colonies without prospect of employment in their chosen line. The only alternative is emigration or a thoroughly discontented class who develop into political agitators, which is very undesirable in this colony.

I do not pose as an educational expert, but I think we must concentrate our efforts more on what boys and girls will have to do in the future. In the Primary Schools nothing is done to encourage agricultural pursuits. When I came here I found the school gardens abandoned and grants had to be withdrawn. Take the case of the girls. Apart from fancy work and embroidery, there is urgent need for progress in plain needlework. We offered exhibitions for this branch, but because of the bad results no awards could be made and the Exhibitions are withdrawn. The results were so bad that it seemed to us we were wasting money. On the industrial side, no industries exist. Basket-making and hat-making are carried on, but it is easy to import foreign hats of far superior workmanship to any done here at less than a third of the local price, and this is not due so much to the enormous cost of the labour as to lack of proper instruction.

Mr. Howard Humphreys remarked to me that he had never been to a place where there was less adequate skilled labour than here. Some form of industrial training is absolutely necessary.

Commercial education should not be entirely neglected. Some provision should be made for teaching shorthand writing and type writing. I do not say that some of these matters are not dealt with, but some prominence should be given to them in the Code.

In addressing educational meetings at which parents were present, those parents showed their appreciation when praise was given for such subjects as music, elocution, etc., but not for anything agricultural or industrial. We have been concentrating in the wrong direction for years. In short, I think our teaching in the schools has been too academic and too little practical. You have now a new Commissioner of Education who should be quite up-to-date, and His Majesty's Inspector of Schools, and by the result of your deliberations it should be possible to lay down a foundation which will have beneficial effect on the future prosperity of the colony, and if you are able to do that you will earn our undying gratitude.

(Mr. Brown observed to be absent from the meeting).

V.—The way of business.

The Chairman presented two modes of procedure to be adopted, one to carry their deliberations to a conclusion by 1st December and send in an interim report, or leave Mr. Wynn-Williams to pursue his investigations and defer a report for a later date.

VI.—Method of securing evidence.

Mr. Carr suggested that a short precis of evidence should be sent in writing by each witness, to be supplemented if necessary, by oral evidence.

The Chairman was in favour of a series of questions to be supplemented, if necessary, by oral evidence.

VII.—A draft Agenda drawn up by the Commissioner of Education was then brought up and discussion of it was deferred until to-morrow so as to give the members the opportunity of considering and revising, if necessary, the business indicated thereon.

VIII.—Adjournment.

The Chairman decided to adjourn the meeting until to-morrow at 8.30 a.m. 8.30—12 was agreed to as the most suitable period for future meetings.

Confirmed—18.11.24.

Signed—21.11.24.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

SECOND DAY.

TUESDAY, 18TH NOVEMBER, 1924.

In the Court of Policy Hall, Guiana Public Buildings at 8.30 a.m.

With the exception of Mr. Brown who regretted his absence in writing all the members of the Commission were present.

I.—Minutes.

Paragraph 2 of the Minutes of yesterday's meeting was amended as follows :—

On page 2 item 3, after the words "as expeditiously as possible" the following words were added "in view of the forthcoming Session of the Combined Court," and on page 6 item VI, after the words "each witness" were added the words "to be supplemented, if necessary, by oral evidence."

The Minutes as amended were then confirmed.

On the suggestion of Mr. Carr it was then ordered that in future every Commissioner shall be sent a typed copy of the day's Minutes before the sitting of the next meeting.

II.—Verbatim Reports.

With a view of obtaining a verbatim report of the proceedings and deliberations of the Commission, Messrs. P. N. Browne and J. A. Luckhoo suggested that it was desirable to requisition the services of Mr. McDougall, the official Shorthand Reporter, as the Secretary of the Commission, Mr. Mathews, would be fully engaged in performing the duties of a secretary and should not be expected to report verbatim at the same time.

The Chairman expressed the opinion that the Secretary had given evidence of good reporting work in his report of the Governor's opening address to the Commission, yet he would in all the circumstances apply for the services of Mr. McDougall after first speaking with that gentleman.

III.—Mode of Addressing the Chair.

The Chairman intimated that the Commission should conduct their deliberations and make their remarks sitting.

IV.—The Draft Agenda.

The Chairman suggested that as the question of administration 1 (a) was governed largely by the question of Policy involving controversial matters regarding the status of the Education Board in its relationship to the Commissioner of Education, it should be deferred. The second and third paragraphs of (b) and (c) should also be deferred.

The Chairman after suggesting the consideration of Head II "Future Policy," said that the best method would be to proceed by way of resolution, so as to expedite matters. He then enquired whether anyone desired to offer any observations and make suggestions under this head.

Mr. Woolford then said that he was prepared to move a resolution as to 2 (a) but thought that some of the members would prefer deferring the resolution until evidence was taken from the witnesses who were to come before the Commission. To proceed now with a resolution would be equivalent to putting the cart before the horse.

The Chairman expressed his appreciation of Mr. Woolford's view and suggested that a series of questions be drawn up to be sent to members who would supplement their evidence also in writing. The Chairman also suggested the appointment of sub-committees for the purpose of settling the form of questions; and in answer to Mr. Carr replied that each witness would not necessarily have the same set of questions to answer.

Consideration of the Agenda still proceeding, Mr. Wynn-Williams pointed to an ambiguity in paragraph 2 as referring partly to supply and partly to policy. "At present", Mr. Wynn-Williams said "one does not know whether you are referring to questions of supply or dealing purely with educational policy."

After remarks and suggestions by Messrs. Moulder and Browne it was further proposed from the Chair that:—

(1) Two Sub-Committees be formed, one for the purpose of considering the question of actual detailed statements in each head of the agenda and to frame questions for the witnesses.

(2) A second Sub-Committee to deal with the rest of the agenda paper.

In reply to a question by Mr. Browne, the Chairman stated that the form only of the agenda and the series of proposed questions to witnesses would be dealt with by the Sub-Committees.

Mr. Moulder then said that if there were to be sub-committees the Commission should separate Primary and Secondary, and Technical Education, as you might get a member who was able in Secondary or Technical subjects, but whose time would be wasted on matters relating to Primary Education and the Training of teachers.

Mr. Wynn-Williams here expressed his opinion that Primary Education should be dealt with from two points of view—supply and aim.

On the matter of supply such definite questions as the following should be fully weighed and considered:—

(1) Is the supply in the Primary Schools of the Colony sufficient to meet present needs or in excess of it, or suitable?

(2) Is it desirable in the interests of Primary Education that Colonial schools should be established?

(3) Is the Denominational system a satisfactory solution of the problem of Primary Education?

At this stage Mr. Thorne entered the meeting and apologised for being unavoidably late.

V.—Appointment of Sub-Committees.

Sub-Committee 1.

To deal with Primary Education—including (a) training of teachers (b) the Inspectorate, together with the suggestions from Mr. Wynn-Williams.

Mr. Woolford, Commissioner of Education, Messrs. Brassington and Wynn-Williams and Canon Wilson.

Committee 2.

Secondary Education and Technical Education Mr. Moulder, Miss Baskett, Mr. Carr, Mr. Beckett and Miss King.

Committee 3.

To deal with the matter named in (a) and to discuss the co-ordination of all educational bodies receiving grants from public funds. Public Examinations in all grades, and salaries of teachers.

Messrs. Thorne, Moulder, Browne, Luckhoo, and Father Killion.

The terms of reference to the above Sub-Committee were given as follows:—

Settling the terms of the Agenda paper and for preparing the series of questions previously referred to; the first named member on each of the Committees to act as Chairman.

The Chairman having pointed to the need for urgency each Committee engaged to have its report ready for Friday next.

VI.—Adjournment.

Next meeting Friday 21st instant at 8.30 a.m. at the Court of Policy Hall.

Confirmed—21.11.24.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

THIRD DAY.

FRIDAY, 21ST NOVEMBER, 1924.

In the Court of Policy Hall, Guiana Public Buildings at 8.30 a.m.

With the exception of Mr. R. E. Brassington all the Commissioners were present.

I.—Confirmation of Minutes.

The Minutes of the two previous meetings of the 17th and 18th instant respectively, were signed after circulation to the Commission.

II.—A. Questionnaire.

A list of questions to witnesses to be invited to give evidence was received and approved from each of the sub-committees appointed at the last meeting to prepare them.

Question 10 under the sub-head of Technical Education to be transferred to head "Training of Teachers."

It was decided to add to head 3—Administration—the following—

"What modification, if any, do you suggest of the method of assessing and paying Grants-in-aid to Primary and Secondary Schools?"

III.—Second Draft Agenda.

On this new Agenda the last head "'Teachers' Salaries" was amended to read "Emoluments of Teachers in all grades of Schools."

IV.—Draft Letter of Invitation to Witnesses.

The above draft letter was then read and the following paragraph added thereto—

"Should you however desire to give oral evidence in place of written answers, will you be good enough to inform me of the fact not later than Monday next at noon and you will be notified when your presence is required."

Messrs. Carr, Reid and Canon Wilson were not in favour of oral evidence being taken in addition to written evidence, unless the Commission asked for oral evidence.

V.—Policy.

Mr. Wynn-Williams outlined a scheme of policy to be submitted as a special memorandum which he undertook to prepare and circulate to the Commission.

The Chairman on behalf of the Commission thanked Mr. Wynn-Williams for the highly valuable views he had expressed.

VI.—Distribution of Questions.

It was agreed to send the questionnaire to all the persons named on the list of witnesses, including Mr. E. O. Pilgrim, B.Sc., a Master of Queen's College; Mr. Pilgrim to appear before the Commissioners at any time chosen by the Principal of the College. The persons addressed were asked to reply within the next 48 hours.

VII.—Coming Evidence.

It was agreed that evidence shall be taken on Monday next from the members of the Commission who were also requested to give evidence.

VIII.—Adjournment.

The Chairman then adjourned the meeting till Monday next, 24th instant, at 8.30 a.m.

Confirmed—24.21.24.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

FOURTH DAY.

MONDAY, 24TH NOVEMBER, 1924.

In the Court of Policy Hall, Guiana Public Buildings, at 8.30 a.m.

With the exception of Messrs. R. E. Brassington and A. A. Thorne all the members of the Commission were present.

I.—Confirmation of Minutes.

The minutes of the previous meeting of the 21st instant were confirmed and signed after circulation to the Commission.

II.—Mr. Wynn-Williams' Speech.

Slight verbal amendments were made in the typed copy of the abstract of the speech which Mr. Wynn-Williams had previously delivered to the Commission.

III.—Evidence begun.

Mr. E. R. D. Moulder, one of the Commissioners and Principal of Queen's College then gave evidence up to head "Training of Teachers"—(a) Pupil Teachers—Georgetown, on the matters contained in the questionnaire which the Commissioners had previously drawn up and issued to all witnesses: Mr. Moulder to resume giving his evidence to-morrow morning.

IV.—Adjournment.

The Chairman adjourned the meeting till 8.30 a.m. to-morrow.

Confirmed—25.11.24.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

FIFTH DAY.

TUESDAY, 25TH NOVEMBER, 1924.

In the Court of Policy Hall, Guiana Public Buildings at 8.30 a.m.

With the exception of the Hon. P. N. Browne, K.C., and Mr. R. H. Carr all the Commissioners were present.

I.—Confirmation of Minutes.

The Minutes of the previous meeting of the 24th instant were confirmed and signed after circulation to the Commission.

II.—Procedure for expediting Business.

The Chairman called attention to the fact that the evidence of Mr. Moulder had already taken up more than three hours. In order to regulate the proceedings and expedite matters he proposed when a written question was answered to enquire of each individual member of the Commission whether he desired to ask anything further.

The examination of Mr. Moulder was then resumed and also concluded.

The next witness, Miss E. J. Baskett, Principal of the Bishop's High School for Girls, was then examined.

The third witness of the day was Mr. E. Beckett, the Superintendent of Ouderneeming Industrial School, whose evidence was also concluded.

III.—The Agenda.

On the suggestion of Mr. Luckhoo it was decided to place "Agriculture" under a separate head for specific treatment in view of its importance, but in the meantime to proceed with getting the evidence to witnesses on the lines of the questionnaire.

IV. It was decided to proceed with the evidence of Mr. Thorne and Canon Wilson to-morrow.

V.—Witnesses.

Towards the close of the meeting printed copies of a memorandum on Primary Education were received from Mr. G. H. A. Bunyan, Secretary of the B.G. Teachers' Association.

Answers were received from—

The Surgeon General, who would also give oral evidence.

The Revd. J. A. Scrimgeour and Mr. O. E. Pilgrim replied "that they were willing to appear before the Committee to give oral evidence."

VI.—Adjournment.

The Chairman adjourned the meeting till 8.30 a.m. to-morrow.

Confirmed and Signed.

CHARLES MAJOR,
Chairman.

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EDUCATION COMMISSION.—MINUTES OF MEETINGS.

SIXTH DAY.

WEDNESDAY 26TH NOVEMBER, 1924.

In the Court of Policy Hall, Guiana Public Buildings, at 8.30 a.m.
With the exception of the Honourable P. N. Browne, Messrs. R. H. Carr and G. R. Reid, all the members of the commission were present.

I.—Confirmation of Minutes.

The minutes of the previous day, 25th inst., were confirmed and signed after circulation to the Commission.

II.—Taking Evidence.

Mr. A. A. Thorne, M.A., one of the Commissioners, was examined in terms of the questionnaire.

At the request of Mr. Wynn-Williams, Mr. Thorne promised to hand in during next week an abstract of his views on rural Technical Schools to the Commissioner of Education.

III.—Witnesses for Next Day.

The Secretary was instructed to write as follows in order to secure evidence:—

- (i) The secretary, B. G. Teachers' Association—not more than two of the Association to come forward at 8.30 o'clock to-morrow morning.
- (ii) Sir John Harrison, C.M.G., to come forward at 10 o'clock to-morrow.

IV.—Adjournment.

The Chairman then adjourned the meeting till 8.30 a.m. to-morrow.

Confirmed—27.11.24.

Signed—28.11.24.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

SEVENTH DAY.

THURSDAY, 27TH NOVEMBER, 1924.

In the Court of Policy Hall, Guiana Public Buildings at 8.30 a.m.

With the exception of the Hons. R. E. Brassington and Mr. P. N. Browne, K.C., and Mr. G. H. Carr, all the Commissioners were present.

I.—Confirmation of Minutes.

The Minutes of yesterday's session were amended as follows and then confirmed:—

In paragraph II. the words "on rural technical schools" were inserted after the word "views," in the last line, and paragraph III. and IV. were struck out, the V. and VI. paragraphs becoming the third and fourth respectively.

II.—Taking Evidence.

Messrs. W. A. Arno and G. H. A. Bunyan, President and Secretary, respectively, of the B.G. Teachers' Association, gave oral evidence supplementary to the memorandum which they had sent in to the Commission.

At 10 o'clock the Chairman asked Messrs. Arno and Bunyan to defer their evidence, keeping within the precincts of the building until they were again required.

Sir John Harrison then came in and was examined.

Sir John Harrison having concluded his evidence, retired.

Messrs. Arno and Bunyan were called in to resume their evidence which will be continued at 9.15 a.m. to-morrow.

III.—Witnesses for next Day.

It was then decided to ask Mr. E. O. Pilgrim, B.Sc., to give his evidence at 8.30 to-morrow (Friday).

IV.—Adjournment.

The Chairman then adjourned the meeting till 8.30 o'clock to-morrow morning.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

EIGHTH DAY.

FRIDAY, THE 28TH OF NOVEMBER, 1924.

In the Court of Policy Hall, Guiana Public Buildings at 8.30 a.m.

Present: All the Commissioners with the exception of Messrs. Brassington, Woolford and Brown.

1. The Minutes of yesterday's meeting were confirmed.
2. Evidence: Messrs. Arno and Bunyan concluded their evidence.
Mr. E. O. Pilgrim, B.Sc., and the Revd. A. M. Hale gave evidence.

Mr. Hale desired to refer the Commissioners to a memorandum prepared by the Governing Bodies of the schools of the Church of England, the Church of Scotland, Wesleyan and Moravian Churches, and submitted to the Education Board in 1923, as containing his views on salaries of school teachers.

3. The Commission adjourned till Monday, the 8th December.

Approved and Signed—8.12.24.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

NINTH DAY.

MONDAY, 8TH DECEMBER, 1924.

In the Court of Policy Hall, Guiana Public Buildings, at 8.30 a.m.

PRESENT :

SIR CHARLES MAJOR, Kt., Chief Justice of British Guiana, Chairman.

MR. J. A. LUCKHOO, K.C., F.R.

MAJOR W. BAIN GRAY, Commissioner of Education,

MR. E. WYNN-WILLIAMS, His Majesty's Inspector of Schools.

MR. E. B. D. MOULDER M.A., Principal, Queen's College.

MR. E. BECKETT, Supt., Onderneeming Industrial School.

The Revd. CANON O. HAYDOCK WILSON,

„ „ **FATHER B. F. KILLION,**

MISS L. B. HAMPDEN KING.

MISS E. J. BASKET, Principal, The Bishop's High School.

1. The Minutes of the meeting of the 28th November as circulated were taken as read and were confirmed.

2. Evidence : Dr. P. James Kelly, Surgeon General, gave evidence.

3. It was decided to invite the Revd. James Persaud, the President of the Chamber of Commerce or other representative of that Body and a member of the Planters' Association, to give evidence at the next meeting.

4. The Commission adjourned till Wednesday next, 10th December, at 8.30 a.m.

Approved and signed—10.12.24.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION—MINUTES OF MEETINGS.

TENTH DAY.

WEDNESDAY, 10TH DECEMBER, 1924.

In the Court of Policy Hall, Guiana Public Buildings, at 8.30 a.m.

Present; All the Commissioners with the exception of Messrs. A. B. Brown, P. N. Brown, E. G. Woolford, R. H. Carr and G. R. Reid were present.

2. Minutes of the 8th December as circulated were taken as read and were confirmed.

3. A reply from Mr. Sherlock, the President of the Chamber of Commerce, to the Commissioners' request to give evidence on subjects included in questionnaire was read.

4. Evidence: The Rev. J. Persaud, representing the East Indian community in the Colony, gave evidence.

5. The Commission adjourned till Thursday the 11th instant at 8.30 a.m., for the evidence of the Director of Public Works.

Approved and signed—11.12.24.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

ELEVENTH DAY.

THURSDAY, 11TH DECEMBER, 1924.

In the Court of Policy Hall, Guiana Public Buildings, at 8.30 a.m.

Present: All the Commissioners with the exception of Messrs. Brassington, P. N. Browne, A. B. Brown, Woolford, Luckhoo, Carr, Reid and Thorne.

2. The minutes of yesterday's proceedings as circulated were taken as read and were confirmed.

3. Evidence: Mr. Pudsey, Director of Public Works, gave evidence.

4. The Commission adjourned till Monday the 15th instant at 8.30 a.m. Education Department, for the evidence of the President of the Planters' Association, and to discuss first draft recommendations.

Approved—15.12.24.

CHARLES MAJOR.
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

TWELFTH DAY.

MONDAY, 15TH DECEMBER, 1924.

In the Court of Policy Hall, Guiana Public Buildings, at 8.30 a.m.

Present: All the Commissioners with the exception of Messrs. A. B. Brown and Carr were present.

2. The minutes of the proceedings of the 11th instant as circulated were taken as read and were confirmed.

3. Evidence: Mr. W. Speed, nominated by Mr. G. E. Anderson, President of the Planters' Association, gave evidence.

4. Recommendations: Of the four draft recommendations circulated to the Commissioners the first, third and fourth were then discussed and passed unanimously after the following amendments:

In the first, for the words "that they will benefit from such a course," were substituted the words "of their personal fitness to become teachers."

In the third, for the words "by almost unanimous consent" were substituted the words "in several respects" and for the words "it be our instruction" in the fourth line of the words "than be more" in the sixth line were substituted the words "in future all syllabuses and courses of study shall be so framed as to be."

In the fourth, after the word "schools" in third line the following words "receiving grants from public funds."

The Commission adjourned to Thursday the 18th instant at 8.30 a.m. (either in the Court of Policy Hall or the Education Department) for the evidence of Mr. Robert R. Strang of Plantation Uitvlugt and further discussion.

Approved and signed.—18.12.24.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

THIRTEENTH DAY.

THURSDAY 18TH DECEMBER, 1924.

In the Court of Policy Hall, Guiana Public Buildings, at 8.30 a.m.

Present: All the Commissioners with the exception of Messrs Brassington P. N. Browne, A. B. Brown, Luckhoo, Beckett and Thorne were present.

2. The minutes of the proceedings of the 18th instant as circulated were taken as read and were confirmed.

3. Evidence: Mr. R. R. Strang, Manager of Plantation Uitvlugt, gave evidence.

On a suggestion from Mr. Carr it was decided to ask Dr. Kelly to give in writing by way of supplementary evidence his views on the mass treatment of Hook-worm disease, which Mr. Carr had observed to be highly successful.

4. Adjournment: The Commission adjourned till Friday the 19th instant at ten o'clock at the Education Department for the evidence of Mr. Carr accompanied by Mr. W. A. Walker and of two witnesses from the East Indian Association, preferably a Hindoo and a Mohammedan.

Approved and Signed—13.12.24.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

FOURTEENTH DAY.

FRIDAY, 19TH DECEMBER, 1924.

In the Court of Policy Hall, Guiana Public Buildings, at 10 a.m.

Present: All the Commissioners with the exception of Messrs. Brassington, P. N. Browne, A. B. Brown, Luckhoo, Thorne, Beckett and Miss Baskett were present.

2. The minutes of yesterday's proceedings as circulated were taken as read and were confirmed.

3. Evidence: Mr. R. H. Carr accompanied by Mr. W. A. Walker gave evidence.

4. Adjournment: The Commission adjourned till Tuesday, the 23rd instant at ten o'clock.

Confirmed—23.12.24.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

FIFTEENTH DAY.

TUESDAY, 23RD DECEMBER, 1924.

In the Court of Policy Hall, Guiana Public Buildings, at 10 a.m.

Present: All the Commissioners with the exception of Messrs. Brassington, Woolford, P. N. Browne, A. B. Brown, G. R. Reid and Rev. Canon O. Haydock Wilson.

2. The minutes of the proceedings of the 19th instant as circulated were taken as read and were confirmed.

3. Evidence: Messrs. Edan of Plantation, Windsor Forest, and Mudholall Bose of Georgetown gave evidence as representing the views of the Mohammedan and Hindoo sections of the community, respectively.

4. Adjournment: The Commission adjourned till Tuesday the 30th instant at 8.30 a.m. in the Court of Policy Hall.

29.12.24.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

SIXTEENTH DAY.

TUESDAY, 30TH DECEMBER, 1924.

In the Court of Policy Hall, Guiana Public Buildings, at 8.30 a.m.

Present: All the Commissioners with the exception of Messrs. P. N. Brown, A. B. Brown, E. Beckett and G. R. Reid.

2. The Minutes of the proceedings of the 23rd instant, as circulated were taken as read and were confirmed.

Discussion: Resolution No. 2 of the first series of proposals drawn up by the Commissioner of Education was considered and voted upon in three separate clauses.

Moved by Mr. Luckhoo—the following amendment: That after the word “Colony” in the third line, for the words “that three colonial schools” in the third and fourth lines down to “for girls of the same ages” in the ninth and tenth lines, the following words be substituted: “(i) three colonial primary schools (to be used as demonstration schools for teachers in training) be established forthwith in Georgetown, to be followed by one central school for boys who have attained the age of 12 years, and one central school for girls of the same age.”

Carried by 8 votes to 4.

Moved by Mr. Luckhoo—the following amendment: That for the words “two colonial schools” in the tenth line down to “public funds” in the fifteenth line, the following words be substituted: (ii) that one colonial primary school be established forthwith in New Amsterdam and in the village district of Buxton and Friendship.”—

Negatived by 11 votes to 2.

Moved by Mr. Carr—the following further amendment: That for the same words as mentioned in the last proposed amendment there be substituted the following words: “(ii) that two colonial primary schools of similar type be established forthwith in New Amsterdam and also in the village of Buxton and Friendship.”

Carried by 11 votes to 2.

It was agreed for the words “all areas and villages” in the seventeenth line to substitute the words “in urban and rural districts” and for the words “schedule of such places” in the eighteenth line to substitute the words “schedule of those districts.”

4. The Reverend Father Killion asked that it be recorded that, in view of the strong position of Roman Catholicism in the life of the community, he appealed on behalf of the Catholic communion for special consideration if their schools should be closed upon the establishment of Government schools in view of the fact that the Roman Catholic denomination would have to pay very largely for school buildings that were not used.

Canon Wilson, on behalf of the Anglican and other churches, joined in the appeal.

5. The following clause (iv) of the recommendation was put to the vote and adopted: “(iv) that no grants in aid be given to denominational schools in districts adequately served by colonial schools.

Adjournment: The Commission adjourned till Wednesday, the 31st instant, at 8.30 a.m. in the Court of Policy Hall.

24.2.25.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF PROCEEDINGS.

SEVENTEENTH DAY.

WEDNESDAY, 31ST DECEMBER, 1924.

In the Court of Policy Hall, Guiana Public Buildings, at 10 a.m.

Present: All the Commissioners with the exception of Messrs. A. B. Brown, P. N. Browne and E. Beckett.

2. The Commissioner of Education proposed and explained the following recommendation which was unanimously adopted and numbered 5.

“That the permanent establishment of the Department of Education shall, in addition to the Commissioner and the Inspectorate, consist of:—

1 administrative officer (2nd class)

1 financial and statistical clerk (2nd class)

1 of each of the following grades:—

4th class clerk.

5th class clerk.

6th class clerk.

3 School Attendance Officers.

3. Mr. Wynn-Williams introduced and explained the following recommendation numbered 6:—

(a) That all educational administration be henceforth undertaken by, and concentrated in, the Department of Education;

(b) that the Commissioner of Education be the responsible officer for all types of Education in the Colony.

4. The Principal of Queen's College desired record of his protest against the form and matter of the recommendation, upon which he had not been consulted.

Upon Clause (a) being put to the vote, Mr. Carr, Canon Wilson, Miss King, Mr. Luckhoo, Mr. Brassington, Mr. Wynn-Williams, Major Gray and the Chairman voted for it.

Mr. Moulder, Mr. Woolford and Father Killion voted against it.

The clause, therefore, was adopted by 8 votes to 3.

(Miss Basket did not vote).

Clause (b) was then discussed:—

Mr. Carr suggested that the word “executive” be substituted for the word “responsible”; the Principal of Queen's College, he said, must be the absolute head of the College.

After debate, consideration of the recommendation was deferred until discussion of a recommendation regarding the constitution of an Education Board or Council.

Mr. Carr then gave notice of his intention at the next meeting to move the adoption of a recommendation for the abolition of the present Education Board and the formation of a consultative Council in its place. The terms of the recommendation would be circulated.

Mr. Wynn-Williams having stated that his mission to the Colony was ended and that that was the last time he would act on the Commission, the Chairman (followed by Mr. Woolford) on behalf of all the members of the Commission thanked Mr. Wynn-Williams for the valuable assistance he, as their expert adviser, had rendered to the Commissioners, desiring to express their high appreciation of his efforts towards the solution of the many problems connected with administration of local education.

The Chairman informed the meeting that for many reasons they could not contemplate another sitting for some weeks, and at his suggestion the Commission adjourned *sine die*.

24.2.25.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

EIGHTEENTH DAY.

MONDAY, 23rd FEBRUARY, 1925.

In the Court of Policy Hall, Guiana Public Buildings, at 9.30 a.m.

Present: All the Commissioners with the exception of Messrs. P. N. Browne, Brassington, Woolford, Beckett and Reid.

Since the last meeting Mr. Wynn-Williams' report to the Government of his inspection of the schools and of the results of his survey of the educational system of the colony, had been confidentially circulated to the members of the Commission, who agreed that its contents ought to be utilized in its entirety as the main part of the Commission's report.

The Commission then proceeded to consideration of a series of recommendations drafted by the Commissioner of Education in consultation with the Chairman and other members, based on Mr. Wynn-Williams' report.

Compulsory Education: The following recommendation was adopted:—

“That all circulars tending to discrimination between East Indians and other races, be withdrawn, and that the operation of Ordinance No. 3 of 1876 be strengthened towards (a) “efficient elementary instruction” being attendance at every elementary school session; (b) increase of pecuniary penalties for non-attendance; and (c) making proof of cause or causes for absence of a child from school lie on the person alleging the same.

Secondary Education: The following recommendations were adopted:—

- I.—(a) That Queen's College continue as a Government Institution as at present-organised; the number of places open to pupils from primary schools entitled to free tuition to be not less than five nor more than eight in any one year.
- (b) That in order that the Principal may have ample time for supervision, an additional master be provided qualified to teach at least one foreign language.
- (c) That provision also be made for the teaching of drawing to the lower forms.
- (d) That class-room accommodation and the vote for the upkeep of grounds, at present inadequate, be increased.
- II. (a) That all grants in aid of secondary education be administered by the Education Department and calculated as a capitation grant for each pupil over the age of ten attending an approved course of secondary education,* a bonus being given to the school in respect of each pupil satisfactorily completing a four years' course, with power to make an increased grant to schools carrying out an approved course of higher education.
- III. That, wherever the number of pupils is less than 50, a block grant, not exceeding the maximum capitation grant for 50, be given to schools where a qualified staff and adequate buildings have been provided.
- IV. That it be one of the conditions on which a grant is given in aid of secondary education that every school so aided shall reserve a proportion of places for pupils selected by the Education Department, whose fees shall be paid, wholly or in part, from public funds.
- V. That schools receiving grants in aid of primary education be not allowed to undertake secondary education unless they are specially recognised by the Commissioner of Education for that purpose.
- VI. That the Blair Scholarship be awarded on the results of the examination for, and under the conditions of, the Government primary scholarship, so far as they are applicable.

NOTE.*—An approved course of secondary education consists normally of English Language and Literature, Geography and History, Mathematics, Science

(including Hygiene), Physical Training and at least one language other than English. The curriculum for girls should include a course of domestic subjects, such as cookery, laundry, needlework and housekeeping.

Agricultural Education : The following recommendations were adopted :

- (I.) (a) That in all courses for training of teachers due attention be given to Nature Study and that as soon as qualified teachers are available that subject be taught as an integral part of the curriculum in all State-aided primary schools ;
- (b) that selected teachers (men or women) who show special aptitude receive a course in practical gardening suitable to the colony and be placed in charge of gardens, which shall be accessible to groups of schools in districts which are not served by the existing district gardens ;
- (c) that isolated schools may, with the approval of the Commissioner of Education, establish a school garden if a qualified teacher and other requirements are available.
- II. That in secondary schools the science course shall include the study of plant and animal life, together with such instruction in botany, chemistry, and physics as is necessary thereto, to be followed (where necessary) by a specialised course in one or more of those subjects.
- III. That in the technical school the science course for pupils who propose to take up agricultural pursuits consist of a general course on similar lines, with greater attention to the agricultural or horticultural application of the biological, chemical or physical principles taught ; and that technical instruction be given in one of the following subjects—poultry farming, dairying, or bee-keeping.

(NOTE.—The pupils taking this course would be from 12 to 15 years of age. The other subjects of the course would be English, Mathematics, (especially Mensuration) Manual Work, Book-keeping, Hygiene and Sanitation, Physical Training).

Mr. Carr, referring to the notice of intention to move the adoption of a recommendation as to the constitution and powers of an Education Consultative Council, asked to withdraw it in favour of that contained in Mr. Wynn-Williams' report, at page 42 of that report as confidentially circulated.

Adjournment : The Commission then adjourned till to-morrow at 9.30 a.m., in the Court of Policy Hall.

25.2.24.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

NINETEENTH DAY.

TUESDAY, 24TH FEBRUARY, 1925.

In the Court of Policy Hall, Guiana Public Buildings, at 9 a.m.

Present : All the Commissioners with the exception of Messrs. E. G. Woolford, A. B. Brown, P. N. Browne, G. R. Reid, R. E. Brassington and E. Beckett.

2. The minutes of the sixteenth and seventeenth days' proceedings as circulated were taken as read and were confirmed, the latter being slightly amended.

3. The following recommendations relating to training of teachers were after discussion adopted :—

I. (a) That in order to obtain entrants of suitable type for the teaching profession, every effort be made to recruit as many pupil teachers as possible from the secondary schools or from technical schools when established, or, if a sufficient number be not forthcoming from those sources, that, between the ages of 14 and 16, all pupil teachers in Georgetown, New Amsterdam (and any other area in which arrangements can be made), receive full-time education of a secondary or technical type in an approved central institution.

(b) That, between the ages of 16 and 18, all pupil teachers in the areas mentioned in paragraph (a), receive part-time education of a similar type, the rest of their time being spent in teaching practice in selected primary schools.

(c) That, between the ages of 18 and 20, all teachers in training attend a full-time course of instruction in a central institution.

II. (a) That after 1st January, 1930, there be issued only two classes of teachers' certificates, to be called Certificate 'A' and Certificate 'B.'

(b) That Certificate 'A' be issued to candidates who satisfactorily complete a course of training, or, until a Training Institute is in full working order, pass an examination in general and professional subjects including a practical test in teaching and that Certificate 'A' be one of the qualifications required for employment as a certificated assistant teacher in a State-aided primary school in the colony.

(c) That Certificate 'B' be issued to teachers who—

(i) have satisfactorily completed at least seven years' service in a primary school in the colony or produce evidence of having completed a similar period in such other schools or countries as the Commissioner of Education shall consider equivalent thereto, and

(ii) pass a test in professional subjects in which credit will be given for proficiency in one general subject on a higher standard than that required for Certificate 'A.'

(d) That as soon as practicable Certificate 'B' be made an essential qualification for appointment as head teacher in a State-aided primary school in the colony.

4. A recommendation for the separation of the sexes was then considered and adopted as follows :—

That in all schemes for the establishment of colonial schools or the re-organisation of existing schools, every effort be made to provide separate premises (or at least separate departments) for boys and girls beyond the infant school stage.

5. On consideration of a recommendation that an intercolonial Board of Examiners be created, it was decided to report that the Commission heartily affirmed the principle and recommended that steps be taken by the Governments of the colonies concerned to establish an institution of the kind.

6. Relating to building and other skilled trades, the following amendment was adopted:—

That, in order to increase and improve the facilities for selected boys to learn one of the building trades (or other skilled trade) arrangements be made for the training of apprentices in an approved works under the supervision of the Director of Public Works similar to those in force for agricultural apprentices under the Director of Science and Agriculture.

Adjournment: The Commission adjourned till to-morrow (Wednesday) at 2 p.m., in the Court of Policy Hall.

25.2.24.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

TWENTIETH DAY.

WEDNESDAY, 25TH FEBRUARY, 1925.

In the Court of Policy Hall, Guiana Public Buildings at 2 p.m.

Present: All the Commissioners with the exception of Messrs. Woolford, Beckett, Canon Wilson and Reid, the last named Commissioner having left the Colony.

2. The minutes of the eighteenth and nineteenth days' proceedings as circulated were taken as read and were confirmed.

3. The following recommendations, were, after discussion, adopted:—

Secondary and Technical Education:

I. (a) That the Mitchell and Government Junior Scholarships be awarded on the results of an examination in English, History or Geography, Mathematics, and at least two additional subjects selected from the following list:—Latin, French, Greek, German, Spanish and Portuguese, Drawing, General Science, Manual Work, Domestic Science, Book-keeping, Shorthand and Typing—the standard to be that of the papers for lower forms set by the Oxford and Cambridge Joint Board (No. 4), and

(b) that only those candidates be accepted who satisfy the Commissioner of Education that they have been undergoing an approved course of higher education.

II. (a) That funds be placed each year at the disposal of His Excellency the Governor for the purpose of nominating the boy or girl, selected by a committee appointed by the Governor for the purpose, best qualified to undergo a course of study in agriculture or any other branch of Applied Science at an institution of university rank within the British Empire; the proposed course and the institution selected to be approved by His Excellency.

(At this stage Mr. Brassington left the meeting).

Registration of Schools: That—

(a) It shall be the duty of the secretary of the governing body, or, if there is no governing body, of the head teacher, of every school not in receipt of grants from public funds, to furnish to the Commissioner of Education such particulars concerning the school as may from time to time be deemed necessary by the Commissioner;

(b) in respect of schools existing if and when a regulation to the above effect comes into force, those particulars shall be furnished within three months thereafter;

(c) in respect of schools that may be opened thereafter, the particulars shall be furnished not less than three months before they are opened; and

(d) the Commissioner of Education, or the Surgeon General, or officers of their departments be empowered from time to time to inspect those schools and report thereon.

Queen's College: The following recommendations relative to the staff of Queen's College were considered and adopted:—

(1) That there should be five assistant masters qualified to take higher work in either Classics, Modern Studies, Mathematics, or Science, of whom two shall receive £450 per annum for three years rising after that by increments of £25 to £600, and three £400 per annum for three years, rising after that by increments of £25 to £550, if proved efficient.

(2) Three assistant masters, of whom one shall be qualified to give oral instruction in a foreign language, and one qualified to teach drawing,—at

xxviii.

a salary of £250 for three years rising after that by increments of £15 to £300, if proved efficient.

4. Adjournment: The meeting was then adjourned till 9 o'clock to-morrow (Thursday) in the same hall.

Confirmed—4.2.25.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

TWENTY-FIRST DAY.

THURSDAY, 26TH FEBRUARY, 1925.

In the Court of Policy Hall, Guiana Public Buildings at 9 a.m.

Present: All the Commissioners with the exception of Messrs. Woolford, Brassington, Beckett, and Canon Wilson.

2. At the request of the Principal of Queen's College the recommendation relating to the staff of the College, approved yesterday, was reconsidered and adopted in the following amended form:—

(Mr. Brown and Mr. Luckhoo, while expressing agreement with the reduction of the probationary period from three years to two, not voting on the increase of salaries.)

(1) That there be five assistant masters qualified to take higher work in either Classics, Modern Studies, Mathematics or Science, of whom, if proved efficient, three shall receive £450 per annum for two years, rising after that by annual increments of £25 to £600, and two £450 per annum for two years, rising by annual increments of £25 to £550.

(2) Three assistant masters, one of whom shall be qualified to give oral instruction in one foreign language, and one qualified to teach drawing—at a salary of £300 per annum for two years, rising after that by increments of £15 to £350, if proved efficient.

3. Grants-in-aid: After reasons given by the Commissioner of Education for the introduction of a system of block grants in place of the present system of specific payments, the following recommendations were adopted:—

I. That the present system of giving separate grants for salaries, buildings, latrines, etc., be abolished, and, in future, block grants be made to primary schools fulfilling the conditions of the Code in force for the time being special importance being attached to—

- (a) the maintenance of an efficient standard of education;
- (b) the payment of an approved scale of salaries for teachers;
- (c) the supply and maintenance of adequate and sanitary buildings, suitable furniture and apparatus; and
- (d) the keeping of accurate accounts and records.

II. That an increased grant be made to primary schools in which regular and efficient instruction in one of the vernacular languages of India is given to not less than 50 per cent. of the pupils in average attendance.

In connection with grants-in-aid the Commissioner undertook to submit a recommendation for the classification of schools as indicated by Mr. Wynn-Williams at pages 55 *et seq.* of his report.

4. Teachers' Salaries: After considerable discussion the following recommendations by the Commissioner of Education were adopted:—

I. That the salaries of certificated teachers in state-aided primary schools be calculated in accordance with the following principles:—

A.—An adequate initial salary should be fixed for the lowest grade of certificated teacher without experience, and an annual increment, up to 15 years in all, the first to be granted after two years' efficient service.

B.—That an additional sum should be granted to—

- (a) the holder of a higher grade of certificate or other special qualification;
- (b) the first assistant in a school in which the Commissioner is satisfied that the appointment of this kind is necessary;
- (c) the holder of any other post which, in the opinion of the consultative committee involves special responsibility; e.g., the instructor of pupil teachers in an area where there is no pupil teachers' centre.

XXX.

II. That the salaries of uncertificated teachers be at a fixed rate (not subject to increment) calculated with general reference to the current cost of living.

III. That pupil teachers of ages 14 to 18 receive an allowance in respect of which only one increase be granted, on passing appropriate tests about the age of 16.

VI. That teachers in training of ages 18 to 20 be granted a fixed allowance, returnable by those not carrying out their undertaking to teach in a primary school in the Colony for at least two years immediately after the period of training.

Trained as against untrained teachers : A proposal that existing trained teachers should be considered as having the special qualification within the meaning of B (a) above as discussed, and approved by a majority of votes.

5. The principle of giving free books for the use of children attending school was not accepted.

6. Adjournment : The Commission then adjourned till Wednesday, 4th March next, at 2 p.m., in the same hall.

Confirmed.—11.3.25.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

TWENTY-SECOND DAY.

WEDNESDAY, 4TH MARCH, 1925.

In the Court of Policy Hall, Guiana Public Buildings, at 2 p.m.

Present: All the Commissioners with the exception of Messrs. Woolford, Brassington, Beckett and Luckhoo.

2. The minutes of the meetings of the twentieth and twenty-first days were amended and confirmed.

3. Compulsory Attendance: The Chairman directed that the following additional recommendation should be circulated:—

That, as soon as practicable, the age for compulsory attendance at school be fixed by law at from 6 to 14 years for all parts of the Colony.

4. Scholarships: The Principal of Queen's College suggested that unqualified candidates should not be allowed to enter for the Guiana Scholarship.

No decision was arrived at.

5. Finance.—Salaries of teachers.

Under this head the following additional recommendation was unanimously adopted:—

That the salaries of head teachers be paid according to an approved scale in which the rates shall rise by fifteen annual increments granted for efficient service, and which shall take into account the class of certificate held by the teacher (A. or B.) and the grade of the school.

(The Commissioner of Education would, every three years, place each school in one of three grades, the average attendance, the number of pupils that can be accommodated in a school according to the existing regulations, and the number of teachers employed being three of the factors to be taken into consideration by him).

6. Education Board: In a paper circulated to the Commissioners, the Commissioner of Education had advocated that the functions of the proposed Consultative Council should be purely advisory. Mr. Carr moved that the specific proposals contained in paragraphs 46-47 of Mr. Wynn-Williams report be adopted.

The Chairman thereupon drew attention to the appendix of the report in which mention is made of a consultative council or committee of seven persons, to be nominated by the Governor.

During discussion Mr. Carr moved, and Mr. Moulder seconded, that the proposals in Mr. Wynn-Williams' report be amended to read as follows:—

To consider and advise the Commissioner of Education on—

- (a) the needs of the Education Department and the preparation of the Education Estimates;
- (b) the expenditure of all public moneys voted for educational purposes by the Combined Court, and all the necessary audits relating thereto;
- (c) any legal difficulties that may arise in connection with the supply of new schools, or the removal of any school from the Annual Grant List;
- (d) any alterations that may from time to time be found desirable in the Code for primary schools and the regulations for secondary, technical, agricultural schools or institutions, and for the training of teachers before they are submitted to the Government for legal confirmation;
- (e) the conditions under which scholarships of all kinds are awarded, the need for, or desirability of, holding any external examinations, and the kind of examination that would appear to be most suitable and appropriate, the general conduct and result of such examinations and their effect upon educational policy;
- (f) any question, educational or otherwise, upon which the Commissioner may wish to seek advice.

After discussion, Mr. Carr's principal motion was also agreed to, Mr. A. B. Brown and Mr. Thorne dissenting on the ground that the Council should be executive and not advisory.

(In the meantime Mr. Carr had left the meeting, after recording his vote in favour of his own motion.)

Mr. P. N. Browne moved that in the event of the creation of the consultative Council above referred to, the dismissal of a certificated teacher, or the cancellation of his or her certificate should be an executive act of the whole body and not of the Commissioner of Education alone.

This was agreed to.

Personnel: It was decided to recommend in the report that the Commissioner of Education should be ex-officio Chairman of the Council, that the Surgeon General should be ex-officio a member of the Council, and two members should be members of the Combined Court, and that the remaining members should be selected on account of their interest in education.

Adjournment: The Chairman adjourned the meeting till Wednesday, 11th instant, at 2 p.m., in the same hall.

Confirmed—4.3.25.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

TWENTY-THIRD DAY.

WEDNESDAY, 11TH MARCH, 1925.

In the Court of Policy Hall, Guiana Public Buildings, at 2 p.m.

Present: All the Commissioners were present with the exception of Messrs. Brassington, Beckett, P. N. Browne and Father Killion.

2. Confirmation of minutes: The minutes of the proceedings of the twenty-second day as circulated were taken as read and were confirmed.

3. The Guiana Scholarship: The following recommendation by Mr. Moulder was adopted; Mr. Woolford alone not voting.

That the entries for the Guiana Scholarship be restricted to candidates undergoing a course of higher education approved by the consultative Council.

4. The Inspectorate: The Commissioner of Education having stated that the proposals before the Commission had been drafted by Mr. Wynn-Williams and himself, offered explanations thereon.

An amendment was moved by Mr. Moulder that the words "possessing degrees (or their equivalent) of some recognised university of the United Kingdom, or the Dominions," be struck out.

Mr. Thorne moved an amendment that the following words be added—"had, in addition, five or six years' experience as a teacher."

Mr. Moulder's amendment was carried by six votes to five.

Mr. Thorne withdrew his amendment.

The resolution as proposed by the Commissioner of Education was therefore carried in the following form:—

(a) That four competent and qualified inspectors be appointed to the permanent Civil Service with as little delay as possible, one to be resident in each county area, who in addition to performing all the duties connected with the inspection of primary schools, shall be competent to inspect at least one branch of secondary or technical education and shall be at the service of the Commissioner to discharge any other functions, administrative or otherwise, that he may consider necessary; and

(b) that in the case of secondary, technical, agricultural schools or any other institutions, where higher or specialised education is given, the Commissioner be empowered, where no officer of the department has the necessary qualifications to enrol a panel of inspectors who are qualified to perform the duties connected with the inspection of such schools.

During the discussion Mr. Browne asked that the question of appointing teachers to the inspectorate (which was raised in the teachers' memorandum) should be considered.

The Chairman said that it was no part of the duty of the Commission to recommend individuals for appointments. The Commission might, however, in their report, draw attention to the suggestion of the teachers as being worthy of notice.

Mr. Carr then moved that the suggestion of Mr. Wynn-Williams as regards the inspectorate be adopted, and that the words "of whom one shall be a woman with qualifications in domestic economy and hygiene," be inserted after the word "inspectors" in the second line.

This was unanimously adopted.

It was also decided to suggest that Mr. Wynn-Williams be asked to assist in the matter of obtaining suitable inspectors.

5. Teachers' Pensions: The Commissioner of Education having introduced and explained his proposals, which are as follows:

(a) That the Teachers' Pension Ordinance be amended in the following respects :

(1) That the present limit of 50% of last salary drawn be cancelled and pension calculated according to length of service and class of Certificate.

(2.) that 2 years' salary be granted to each teacher retiring on pension.

Mr. Moulder, Canon Wilson and Mr. Woolford spoke against the proposals contained in section (2). The sense of the meeting having been clearly indicated against this section of the recommendation the Commissioner did not press it.

Mr. Luckhoo moved that the first clause of the recommendation be adopted.

This was carried by six votes against five.

6. Finance :—Grants in aid of primary education—

The following recommendation was unanimously agreed to :—

(a) That in addition to the block grants made to all schools which reach a satisfactory standard of efficiency, an additional grant be made to schools which are reported by the officers of the Education Department as being 'excellent' or 'good' ;

(b) that the purpose to which this grant is applied by the managers of the schools be specially approved by the Commissioner of Education.

7. Compulsory attendance : After discussion the Commissioner of Education put forward the following recommendation—

That, as soon as practicable, the age for compulsory attendance at school be fixed by law at from 6 to 14 years for all parts of the colony.

Mr. Carr moved:—That the law be left as it stands.

The Chairman then put the question to the vote.

The recommendation was carried by eight votes to three.

8. Queen's College :—The members of the Commission thought that a recommendation as to free quarters for the Principal should form a part of the general recommendations in connection with Queen's College.

In connection with the above matter the Commissioners agreed to mention in their recommendations regarding Queen's College the following suggestion by Mr. Thorne :—

That arrangements be made at Queen's College to accommodate boarders from the Country.

9. Adjournment : The meeting was then adjourned till 2 p.m. to-morrow, in the same hall.

18.3.25.

CHARLES MAJOR,
Chairman

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

TWENTY-FOURTH DAY.

THURSDAY 12TH MARCH, 1925.

In the Court of Policy Hall, Guiana Public Buildings at 2 p.m.

Present : All the Commissioners with the exception of Messrs. Brassington, Luckhoo, P. N. Browne and Thorne, and Father Killion.

2. The minutes of the proceedings of the previous day were confirmed subject to the following amendment:—

That in item No. 8—Queen's College—the words commencing from "Salary of the Principal" down to the word "candidate" at the bottom of the page be expunged and the following substituted therefor.—

The members of the Commission thought a recommendation as to free quarters for the Principal should form a part of the general recommendations regarding Queen's College."

3. Secondary and Technical Education—A Girl's Scholarship—The Commissioner of Education then put forward the following recommendations.—

(a) That His Excellency the Governor be requested to nominate each year one girl between the ages of 16 and 19 selected by a committee to be appointed for the purpose as best qualified to undergo a course of study at an institution of university rank within the British Empire, the proposed course and the institution selected to be approved by His Excellency; and

(b) that a sum be voted annually to defray the cost of the student's fees for the approved course and other necessary expenses.

Mr. Moulder and Mr. Woolford spoke against the proposal as it stood, and suggested amendments.

The Commissioner of Education moved that the general principle of establishing this scholarship be affirmed. This was carried.

The Commissioner of Education then moved that the principle of selection by a committee appointed by the Governor for the purpose be affirmed. This was negatived by a majority of votes.

(The Principal of Queen's College did not vote.)

After other suggestions had been made, the Commissioner of Education, seconded by Mr. Moulder, moved for the insertion of the words "which shall be open to public competition", to which Mr. Woolford suggested the addition of the words "under regulations to be made later."

Subject to these amendments and the necessary verbal alterations, clauses (a) and (b) of the recommendation were then unanimously approved.

4. Miscellaneous : The following items were then introduced by the Commissioner of Education :—

(a) That no action be taken in the matter of establishing a Government Secondary School for girls.

(b) That a scheme for the training of girls in suitable occupations be instituted on lines similar to those in force for the training of boys as agricultural and industrial apprentices.

(c) That the report of the special committee on the Industrial home for girls be approved, subject to provision being made for the general control of the home by a governing body of 3 members, nominated by His Excellency the Governor.

(d) That agricultural and industrial apprentices (including girls) who satisfactorily complete their course of training, be given a grant in money or kind, equal in value to the sum they have saved during their apprenticeship, for the purpose of enabling them to take up within the colony any

agricultural or industrial pursuit approved by the authority administering the scheme under which they have been trained.

On the suggestion of the Chairman it was agreed that (d) should be discussed after (b).

With reference to clause (a) Mr. Woolford stated that in his opinion a Government Secondary School for girls was a necessity. He pointed out that the subventions to existing schools were liable to be reduced at any time, or even to be cut off altogether.

It was therefore agreed to make it clear in the report that if the recommendations regarding the girls' department at the Technical School, and the grants to the existing secondary schools are not carried out, then steps should be taken immediately to establish a Government secondary school for girls.

(b).—The principle of this clause was then agreed to.

(d) was then approved, and ordered to be included after (b).

The Chairman then said that suggestions had been made by a magistrate that girl offenders should be sent to an institution similar to Onderneeming.

After discussion (c) was then approved.

It was pointed out by Mr. A. B. Brown that the recommendation did not meet the need for a home for young girls who had no responsible persons to look after them. After discussion it was agreed to include in the report a recommendation that an orphanage or similar institution appeared to be required as well as the industrial home.

5. Educational administration: The Chairman drew attention to the minutes of the seventeenth day's proceedings, dated 31st December. Mr. Wynn-Williams had introduced a recommendation (numbered 6 (b)):

That the Commissioner of Education be the responsible officer for all types of education in the colony. Mr. Carr had proposed the following amendment.

That the word "executive" be substituted for the word "responsible."

Further consideration of this question having been deferred till the relations of the Commissioner of Education and the Board of Education had been settled, it was now brought forward for decision.

Considerable discussion followed, during which Mr. Carr entered the meeting. (Time 3.40 p.m.)

Mr. Woolford stated that, in his opinion, the Commissioner should be a member of the governing body of Queen's College.

The Chairman put the question as follows.—

That the Commissioner of Education be the chief executive officer for all types of education in the colony; to which as an amendment, it was proposed to add the following words.—

"except in respect of Queen's College."

The amendment was put and was lost by 5 votes against 4. A second vote was taken on the question of the following words being added to the motion:—

"except in respect of Queen's College during the tenure of office of the present Principal."

The addition was approved by 5 votes against 1. (The Commissioner of Education, the Principal of Queen's College and Miss Baskett, did not vote.)

6. Adjournment: The Chairman then adjourned the meeting till Wednesday, the 18th instant, at 2 p.m., in the Court of Policy Hall.

Approved and signed
(18th March, 1925).

CHARLES MAJOR,
Chairman

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

TWENTY-FIFTH DAY.

WEDNESDAY, 18TH MARCH, 1925.

In the Court of Policy Hall, Guiana Public Buildings, 2 p.m.

Present: All the Commissioners with the exception of Messrs. P. N. Browne, A. B. Brown, Thorne, Carr, Beckett and Luckhoo.

2. Confirmation of minutes: The minutes of the meeting of the twenty-fourth day were taken as read and were confirmed.

3. The following recommendations, as amended, relating to the appointment, promotion, suspension and dismissal, etc., of teachers were unanimously adopted:—

I. That the powers of the Commissioner of Education in connection with the appointment, promotion and dismissal of teachers and pupil teachers in State-aided primary schools be strengthened in the following directions:—

(a) that the appointment and promotion of all teachers and pupil teachers in State-aided primary schools be subject to his approval;

(b) that he be empowered to require the governing body concerned to suspend from duty any pupil teacher or uncertificated teacher, and to investigate any complaint made against him or her;

(c) that decision of the governing body in respect of an uncertificated teacher or pupil teacher be subject to confirmation by the Commissioner of Education, who may modify at his discretion the penalty proposed. Should the Commissioner of Education require the dismissal of the uncertificated teacher or pupil teacher, and the governing body (or a majority thereof) not concur in this penalty, the governing body may appeal to the Consultative Council whose decision will be final;

(d) that he be empowered to require the governing body concerned to suspend any certificated teacher pending the decision of the Consultative Council as to the dismissal of the teacher or the cancellation of his or her certificate.

II. (a) that the practice of fining teachers be discontinued;

(b) that minor breaches of the regulations be recorded on the teacher's certificate or record of service; and

(c) that repeated or serious offences be punished by dismissal or the cancellation of the teacher's certificate.

4. The following recommendation relating to school buildings, etc., was also in like manner, unanimously adopted:—

That increased funds be provided in 1926 (and subsequent years, if necessary) for the purpose of putting into a reasonable state of repair (especially in respect of cleanliness and sanitation) the buildings, out-houses, surroundings and equipment of State-aided primary schools, which, in the opinion of the governing body concerned and of the Commissioner of Education, will necessarily be used as schools for at least five years thereafter. Should the governing body and the Commissioner of Education fail to agree as to the eligibility of any school to receive a portion of this grant the matter will be referred to the Consultative Council, whose decision will be final.

5. Agricultural Scholarship—age limit: It was decided to recommend:—

That the age limit for the proposed scholarship in agriculture (or other branch of applied science) be from 16 to 20 years.

6. Proposed Medical College at Jamaica:—It was further unanimously agreed to make the following recommendations relative to intending students of Medicine and Science:—

That no subsidy be paid to the proposed Medical College at Jamaica, but that, in order to meet the needs of the intending students of Medicine and Science, there should be in at least one institution in the Colony courses in Physics and Chemistry up to the standard of the Higher Certificate of the Oxford and Cambridge Joint Board, and that in addition, provision be made for a course in elementary Biology which will be recognised by one or more of the bodies in Great Britain which licence medical practitioners.

7. Continuation schools: The Commissioner of Education pointed out that he proposed to include in the draft report proposals that evening continuation classes shall be carried on at the Colonial Schools, especially the proposed Technical School, and elsewhere. This was agreed to.

8. Adjournment: The Commission then adjournment *sine die*.

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

TWENTY-SIXTH DAY.

WEDNESDAY, 15TH APRIL, 1926.

In the Court of Policy Hall, Guiana Public Buildings, at 2 p.m.

Present : All the Commissioners with the exception of Canon Wilson, Miss Baskett, Captain Beckett, and Mr. Brassington. Mr. Carr left the colony on the 22nd March.

Confirmation of Minutes : The minutes of the proceedings of the twenty-fifth day, as circulated, were taken as read and were confirmed.

Draft Report : The Secretary then read out the draft report prepared by the Commissioner of Education, down to the end of paragraph 12, page 18. Certain amendments, mostly verbal, were consequently made therein.

Adjournment : The Commission then adjourned until 2 p.m. on the following day (Thursday).

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION.—MINUTES OF MEETINGS.

TWENTY-SEVENTH DAY.

THURSDAY, 16TH APRIL, 1925.

In, the Court of Policy Hall, Guiana Public Buildings, at 2 p.m.

Present: All the Commissioners with the exception of Canon Wilson, Miss Baskett, Captain Beckett and Father Killion.

Confirmation of Minutes: The minutes of the proceedings of the twenty-sixth day, as circulated, were taken as read and were confirmed.

Draft Report: The reading of the draft report prepared by the Commissioner of Education was resumed, and continued down to the end of the chapter—Administration, during which reading certain verbal amendments were made.

Adjournment: The Commission then adjourned until 2 p.m. on the following day (Friday, 17th April).

CHARLES MAJOR,
Chairman.

EDUCATION COMMISSION,--MINUTES OF MEETINGS.

TWENTY-EIGHT DAY.

FRIDAY 17TH APRIL, 1925.

In the Court of Policy Hall, Guiana Public Buildings, at 2 p.m.

Present: All the Commissioners with the exception of Messrs. Browne, Woolford and Brassington, the Rev. Father Killion, Miss Baskett and Captain Beckett.

2. The minutes of the proceedings of the twenty-seventh day, as circulated, were taken as read and were confirmed, with one amendment.

3. The confirmation of the report drafted by the Commissioner of Education was then resumed. With reference to Chapter V., paragraph 9, the Commissioner drew attention to the alternative proposals contained in the last two paragraphs of the Teachers' Memorandum. After discussion it was decided that the previous decision of the Commission, as embodied in this paragraph of the report, covered all the points raised in the Memorandum.

The Chairman thereupon intimated that the report, as amended, would be circulated to the Commissioners for their signatures thereto.

4. The Chairman then said that on behalf of himself and the other members of the Commission he desired to record grateful thanks to the Secretary, Mr. H. A. Mathews, late Assistant Inspector of Schools, for his arduous and untiring efforts, and that, personally, he desired to express his thanks to the Commissioner of Education, who had undertaken, and ably and successfully carried out, the work of drafting the report.

5. The Commission then proceeded, Mr. Mathews withdrawing, to discuss the remuneration of the Secretary. It was decided to recommend that the following honoraria be paid:—

To the Secretary	...	...	75 guineas.
At the disposal of the Commissioner of Education			
for typing, etc.	...	...	25 guineas.

The proceedings of the Commission then terminated.

CHARLES MAJOR,
Chairman.

APPENDIX D.

MEMORANDUM.

Report on Education in British Guiana

BY

MR. E. WYNN-WILLIAMS, H.M.I. OF S.

MEMORANDUM.

REPORT ON EDUCATION IN BRITISH GUIANA BY MR. E. WYNN-WILLIAMS, H.M.I. OF S.

INTRODUCTORY.

1. Whatever may be said on behalf of the Educational system in the Colony of British Guiana no plea can be established in favour either of statesmanlike policy or of effective administration. It is true that from time to time efforts have been made to systematise Primary Education by the introduction of Codes and Regulations, but these have been little more than pale and shadowy attempts to transplant the Regulations of the English Education Department of the Privy Council, and later of the Board of Education, to a Colony where their suitability was open to grave doubt and where, owing to the lack of trained teachers and other circumstances not less important, it was impossible to carry them out with any hope of success. Educational policy has in fact followed the line of least resistance.

NO ATTEMPT TO THINK OUT A POLICY SUITABLE TO THE COLONY.

2. No attempt appears to have been made to consider, far less to meet, the special needs of the Colony. It has in the past been thought sufficient for the needs of this distant outpost of Empire slavishly to adopt the principles and methods which were found suitable in England but which could under no circumstances be applicable in their entirety to a Colony where no traditions existed, where Commerce, Industry and Agriculture were in their infancy, and where difficulties have been immeasurably increased by the fact that a mixed population existed. The results of this unwillingness to think out an educational scheme, which can only be described as an intellectual lethargy, by those who are responsible for marking out the course (as it were) of Education, are very apparent to-day; and the very frequent criticisms that are made to the effect that the teaching in the schools bears little or no relation to the realities of life are by no means without foundation.

ADMINISTRATIVE FAILURE.

3. Administratively the plight of the Colony is even worse. The history of administrative and executive control would be ludicrous, if it were not pathetic in its failure. Indecisiveness, constant instability, complete lack of continuity of policy are the cardinal features. The history of administrative changes (so far as it can be disentangled) affords ample illustration. Briefly it is as follows:—

THE HISTORY OF EDUCATION IN OUTLINE.

4. In 1830 the Colonial Exchequer made a small contribution to encourage the efforts and supplement the resources of Missionary Schools. Twenty years later as the result of a public enquiry the first Board of Education was established with the object of carrying into effect certain recommendations made by the Commission and of administering grants of money made for the purpose of erecting new school-houses and making some contribution towards the salaries paid to schoolmasters. Attached to these grants were certain conditions which were unacceptable to the Clergy; the Board became unpopular, and after one brief year of life it was swept out of existence. The entire control was then placed in the hands of an Inspector of Schools, and from 1850 to 1862 the distribution of grants and all other administrative functions were carried out, apparently with great success and ability, by one man.

In 1862 a change was again made. The Board of Education was re-established and consisted of five members (all Government Officials) nominated by the Governor,

who was himself President of the Board. The régime lasted from 1862 to 1874, during which time the number of State-aided schools was considerably increased, and various changes of system including that known as "payment by results" was introduced. The effectiveness of the work carried out by the Board was nevertheless called in question and at the instance of the Governor of the day, Sir James Longden, another Commission of Enquiry was held, with the result that a third Board of Education was called into existence in 1877.

The new Board consisted of ten members, who were appointed by the Governor and the Court of Policy, and were made responsible directly to the Governor who had full power to alter, nullify, or revoke any order or resolution made by them. For five years this Board which consisted mainly of Ministers of various Denominations held office, but in 1882 the Governor, Sir Henry Irving, commented adversely on its administration and especially upon its financial incompetence and miscalculations and, as a consequence, the existence of the Board was once more terminated.

For a second time the control of Education was vested in the hands of one man—the Inspector of Schools (1882).

Some grounds for dissatisfaction, however, continued to exist, and the question of the best and most suitable form of administration continued to harass the minds of successive Governors. In 1896 a Commission declined to recommend the rehabilitation of the Board and with this recommendation the Governor, Sir Walter Sendall, concurred. In 1902 yet another Commission met and this time reported in favour of the re-establishment of the Board which was to consist of six members, four of whom were to be nominated by the Governor, one by the Managers, and one by the teachers of schools. The Governor, Sir Alexander Swettenham, in a strongly expressed despatch dissented from the view of the Commission and his attitude was confirmed by the Secretary of State.

In 1910 (Ordinance No. 10 of 1910) a Board of Education appeared once more on the scene. This consisted of six representatives of the Combined Court, seven Managers of Schools, two Head Teachers, the Inspector of Schools, with Professor Harrison (Chairman)—the Director of Science and Agriculture. The powers of the Board were limited to giving advice. They had no executive or administrative functions. After four years' experience of this Board Sir Walter Egerton addressed a despatch to the Secretary of State in which he commented adversely on the work done by the Board and upon its general failure to carry out the duties which it was designed to achieve. With this adverse criticism two distinguished Chairmen of the Board (Professor Harrison and Sir Joseph Godfrey) fully concurred, but the Secretary of State (Mr., later Viscount, Harcourt) deprecated the abolition of the Board.

Once again, in 1918, a radical alteration was made in the constitution of the authority responsible for Education. By Ordinance No. 36 of 1918 a new Board was constituted with the Governor himself, Sir Wilfred Collet, as Chairman. To this body was transferred *en bloc* all the powers of the Governor-in-Council and it was composed of not less than 9, and not more than 11 members, of whom not less than 4 had to be elected members of the Combined Court. The powers of the Board under this Ordinance were not merely advisory but executive, and, inasmuch as the Governor was the Chairman, became virtually established as the final authority in the Colony. But, be it noted, the most modern attempt to bring education under effective administration took cognisance of Primary and Secondary Education only. Agricultural and Industrial Education (two Departments of activity and of the very highest importance) were left outside of the purview and control of the Board and no sort of attempt at co-ordinating these branches and bringing them into harmony with the educational organisation of the Colony was made.

Meanwhile the Legislature of the Colony proceeded on its way enacting laws which the Executive had not the ability to enforce and which were in advance of their time. Thus, an Act for making attendance at school between the ages of 6 and 14 compulsory was passed in 1919. It still remains on the Statute Book but remains almost a dead letter. Similarly, conditions laid down with every form and circumstances of impressive legality as necessary conditions of the recognition of schools are openly and flagrantly disregarded—even conditions which affect the health of the children and the community at large. Regulations affecting sanitation for example—a vital pre-requisite to all education—are on the testimony of the Surgeon General himself openly ignored and the Executive Authority of the Colony seems powerless to carry out the legislation of the Court of Policy.

Under circumstances such as these—an educational policy which is a mere copy of English policy and ill-adapted to meet the needs of the Colony, and with an Executive which is paralysed by constant changes—Education has become the sport and plaything of chance or politics. Its present condition, it must be candidly stated, is chaotic. It lacks objective, and control of the Government, if indeed any control can be said to exist, is too limited and too seldom and too inconsistently exercised to be effective.

EARLY PIONEER WORK OF THE CHURCHES.

5. On the other hand it must not be forgotten that the Government has succeeded in evading many of its responsibilities for a very long time. The task of building Primary Schools has been left entirely to religious denominations. These religious bodies have been the pioneers and they continue to be the mainstay of education. For this excellent work they deserve full credit. They have borne and are bearing the heat and burden of the day, and the State has escaped relatively cheaply by making grants to defray the salaries of the Teachers (which have not in the past been excessive) together with some insignificant payments for maintaining the buildings in repair, and for School Gardens and Manual Instruction.

SOME OF THE RESULTS OF THE CONTROL OF EDUCATION BY DENOMINATIONS.

6. This long continued evasion of its responsibilities by the State has had the effect not merely of placing all denominations in a quasi-established position, but has resulted in anomalies which have led to absurd competition between the various denominations, gross wastage of public money, and of the weakening of the teaching force by the necessary employment of a very large corps of unqualified Teachers and Pupil Teachers of immature age. Examples are found at every turn. Let me take one illustration.

Buxton and Friendship form one large village community which on the hypothesis that the percentage of attendance reached 80 could be served by two schools. At the present time the number on the books, according to the most recently published figures, is 1,369 and average attendance 892. For this number there are five separate schools in existence, with a teaching force of 5 Head Teachers, 6 Certificated Teachers, and no less than 29 Teachers and Pupil Teachers with no qualifications at all. Such a state of affairs is clearly the very antithesis of sound educational organisation.

The points that at once invite criticism are (1) the ratio between qualified and unqualified practitioners, (2) the inevitable wastage of public money in the employment of so much unskilled labour and (3) the unsatisfactory results that must inevitably ensue from the point of view of the children.

The absurdity of such a situation is so self-evident that it is only to be stated to be fully appreciated.

For a village community of the size of Buxton and Friendship, where an average attendance of 890 is the case, two schools (one for boys and one for girls) with a staff consisting of 2 Head Teachers, 14 Certificated Teachers and 4 Uncertificated Teachers might conceivably be sufficient: or, if the scale of school attendance rose (as it ought to rise in view of the Ordinance making attendance compulsory) to 80% and there were approximately 1,100 in average attendance, the total staff would consist of 2 Head Teachers, 18 Certificated Teachers and 4 Uncertificated Teachers—an arrangement which would provide for every class being under the direction of a qualified teacher, which would give the Head Teacher, in addition, to doing a certain amount of teaching himself, an opportunity of superintending the work of his staff and still leave him two Uncertificated Teachers to assist at whatever point he thought their services most essential.

The case of Buxton and Friendship is cited not because it stands alone—there are many other examples—but because it serves to show one of the worst effects of this system of competing denominationalism.

Organisation, which is thoroughly indefensible in principle and thoroughly bad in practice, is one of the inevitable consequences. Teachers of immature age and Teachers possessing no qualifications are multiplied notwithstanding the fact that most of the schools consist of one room only. And so the evil goes from bad to worse, the state of confusion increases, and the hope of orderly organisation and sound education steadily diminishes *pari passu*.

A breaking point, however, comes at last, and the zeal of the denominations to take charge of education is confronted by the inexorable and chastening demands of finance. Something has to be sacrificed to the ever-increasing demands that are made upon the Churches. Buildings and school premises generally are the first to suffer. Managers find it impossible to wrestle with wear and tear, to repair the damages made by time and use and weather, to comply with the very necessary demands for improvement and sanitation, to provide a supply of water—in short to keep abreast of the advancing needs of the times. The cry “no funds” is heard at every turn and the Department of Education has to rest content with the prospect of indefinite stagnation. Such is part of the price—and part only—paid by the Government for the system of Education which depends wholly on the efforts of denominationalism.

REFORM A VITAL NECESSITY.

7. No State, however small or remote, can afford in these days of world-competition to pursue in the matter of Education a policy of *laissez faire* or rest content with what was adequate fifty or sixty years ago. And least of all British Guiana, which with all its natural resources appears to be struggling for its very existence in the world of industry and commerce. Reform which has been far too long delayed has to be faced and faced immediately, let the cost be what it may. Not to go forward is to lapse into decay; stagnation means industrial and commercial elimination.

GENERAL STATE OF DISORGANISATION.

8. The general disorganisation of the various educational activities is a matter upon which it is necessary to offer some comments. Primary Schools are under the administration of the Board of Education—*Capas Imperii nisi imperasset*—whose chief Executive officer is known as the Commissioner of Education. What the precise powers of this officer are cannot be definitely ascertained. They are apparently considerably restricted and the responsibilities for defects and mistakes in the administration cannot properly be laid at his door since he acts only as an adviser to the Board.

Secondary Education forms an entirely separate Department and is apparently under the direction of the Principal of Queen's College. There is, so far as I can ascertain, no point of contact between Secondary and Primary Departments, save

that the Commissioner of Education and the Principal of Queen's College have seats on and act as officers of the Board.

Agricultural Education is another separate Department under the direction and control of the chief officer of the Department of Agriculture and Science. Industrial Education, so far as it can be said to exist, is limited to boys, who have been convicted in a Magistrate's Court of some legal offence or misdemeanour, or who are orphans. These boys are sent to a quasi-penal settlement at the residential school at Onderneeming, in the County of Essequibo, which can best be described as a Reformatory. For this institution which is conducted with great skill and success by Captain Beckett the Department of Science and Agriculture is responsible.

The Public Works Department also makes fitful and pathetically unsuccessful attempts to create, and cater for, a supply of skilled apprentices in various ways, and for this educational activity the Head of the Department, acting through and upon the nominal advice of a Committee of Employers, is responsible.

It will thus be seen that the disorganisation of the various educational forces is complete. No co-operation or co-ordination of any kind is in existence; each department proceeds upon its way with a sublime disregard of the work done or attempted by any other department.

Under these circumstances it is impossible to review the state of education as a whole. No system exists. The best that can be done is to review each department briefly and to consider the work accomplished by the several parts.

PRIMARY EDUCATION.

Buildings.

9. As regards Primary Schools the conditions under which the work is carried out are most unfavourable. All the buildings are of similar design. They consist of one large room in which children of all ages from 6 to 14 are taught together. Here and there, but very rarely, is to be found a class-room which is generally too small to be of much use. The latrines and office accommodation are almost without exception thoroughly bad—so bad that they can only be described as a disgrace to any civilized country; a supply of drinking water is seldom to be found and proper provision for lavatories is almost unknown.

Equipment.

Equipment and the necessary apparatus of a school are equally deficient. Suitable desks for writing purposes are unknown luxury. Such substitutes for these as there are consist of cumbrous and shapeless blocks of wood, fashioned by primitive craftsmen, and constructed without reference to the needs of the children, and not unfairly referred to by the Teachers in their memorandum to the Commission as "instruments of torture." An adequate supply of books does not exist. The former are bought by the children and I seldom saw a class in which each member possessed a Reading Book of his or her own. Slates, most of which are in a broken and dilapidated condition, are used regularly in all classes, and younger children did most of their writing on these, holding them in the crook of the arm and without resting them on a desk.

GENERAL IMPRESSION.

10. Under such conditions it is scarcely to be expected that very satisfactory results can be obtained. It was scarcely possible in the time at my disposal to form a very definite or accurate estimate of the real value of the work done. But my general impression coincided in broad outline with the report of Mr. Lawrence, which, as far as I am able to judge, seems to sum up the position with fairness and accuracy. Discipline is well maintained and in those subjects where the imitative faculties and power

of memorising are primarily essential the results are quite satisfactory. The infants learn to read quickly and the younger children read and spell very well. Arithmetic in all classes appears to be a strong subject, and I saw several classes in which problems were attacked with confidence and were correctly and speedily solved. English is almost universally the weak subject, but for some reason or other the quality of the work falls off as the children grow older.

UNSUITABLE SYLLABUSES.

11. The syllabuses of all schools are practically alike. They are very narrow and restricted in outlook, and in some respects they are ludicrously grotesque. It seems absurd, for example, to find the East Indian and other children seriously giving their concentrated attention to the "Anarchy of Stephen's Reign" or "the religious difficulties of Queen Elizabeth," or, in the case of an English lesson, a class of children who were preparing for the Leaving Certificate, and whose knowledge of English was very imperfect, trying to assimilate the atmosphere and the Cockney humour of Dickens' "Christmas Carol." But when all is said and done, and when the difficulties under which all the teachers work are remembered; when the quality of the staff and the lack of equipment are taken into account, the wonder is not how little but how much has been accomplished. Under better conditions and under better direction it cannot be doubted that the achievements of the children would be greater. The main obstacle, however, in the way of reform is the effort that will be required from the teachers to lay aside the traditions to which they have been accustomed all their lives, and to adjust their teaching to the needs of the Colony in which they live.

SECONDARY EDUCATION.

12. Of Secondary Education much that has been said of the Primary system may be repeated *mutatis mutandis*.

QUEEN'S COLLEGE.

Queen's College, the principal Secondary School of the Colony, though a comparatively new building was not originally built for a school, and is none too large, nor too generously equipped, for its purpose. Its class-room accommodation is limited; the Chemical Laboratory, though good as far it goes, is congested, and its playing field too small.

In character the training which it provides for the 168 boys on the roll is similar and parallel in almost every particular to that given in an old established secondary school in England, and although I have had no opportunity to form an opinion of the quality of the teaching, the results of various Cambridge Local Examinations would appear to indicate that it is at least thoroughly sound as far as it goes, and it is legitimate to infer even from a very brief visit that the tone and discipline are all that might be expected in a well-conducted school of the kind.

ITS EDUCATIONAL OBJECTIVE.

13. It is, however, within the limits of fair comment to suggest that the time has come when the object and purpose of the school should be reconsidered in the light of modern requirements. The main objective is to train boys for the professions and the Universities. The course of prescribed studies is severely and exclusively academic, and in this respect (if one may say so without offence) a little behind the times. That this should be the case is not surprising since there is no Secondary School of similar standing within the Colony, the nearest schools of the kind being in Trinidad and Barbados. In a well-meant attempt to preserve the standard of attainment the authorities of Queen's College have encircled the school with a chain of examinations, which appear to me to be unnecessary, and which have served to reduce the initiative, freedom and discretion of the Headmaster to a degree which is little short of bondage.

THE BANE OF EXAMINATIONS.

All the work of the upper forms of the school (from Form III. upwards) is tested by Cambridge Local examinations—first the Preliminary, then the Junior and finally the Senior. The Preliminary is to be, or has already been, abolished, but the evil shadow of impending tests still hangs like a pall over the school, necessarily limiting the teaching to the scope of a syllabus scarcely suitable to the needs of the majority of the boys.

AND THE FETTER OF CERTIFICATES.

14. Meanwhile parents have become accustomed to demand certificates from such bodies as concrete evidence of their boys' progress, and some employers ask for them when engaging clerks in their counting houses. Thus the vicious circle is completed, and the work of the Teacher is bound to the chariot wheels of the Syndics of Cambridge University. The inappropriateness of the syllabus for the purposes of the majority of the pupils at the school may be seen at a glance; they may be suitable for certain types of Secondary Schools in England, but they certainly do appear to be in the highest degree artificial—especially as regards the teaching of Science—for Secondary Schools in the tropics.

One of the consequences of this slavish adherence to external examinations may here be noted. No time can be devoted at any stage in a boy's career to Music, Drawing, or Manual Instruction. It is deplorable that in a school, where higher education is given, no place can be found to encourage and develop the æsthetic and emotional side of a boy's training; but it is almost a scandal that Manual Work should entirely be neglected in the principal school of the Colony, where so much depends upon the industrial life of the community, upon the introduction of a highly skilled element in Agriculture and upon applied Science generally.

THE GUIANA SCHOLARSHIP.

15. Another lion in the path of rational education at Queen's College is the Guiana Scholarship.

This is the highest prize that a boy in the Colony can hope to attain, as it enables him to pursue advanced studies at any approved University in the United Kingdom or the Dominions. The election to this Scholarship is by Ordinance made to depend upon the results of an examination under the Regulations of the Oxford and Cambridge Schools Examinations Board which, like the Cambridge Local, and other similar examinations, lays no stress upon the special requirements of the Colony. It therefore follows that only a boy brought up on Classical lines, or on pure Mathematics, or academic Natural Science, is eligible. The successful candidate proceeds to a University, usually in Great Britain, adopts some profession, most frequently that of a Doctor or Barrister, and, if he becomes highly proficient in his calling, seldom returns to British Guiana. The present regulations governing the Guiana Scholars, therefore, not only unduly influence the curriculum of the school in favour of academic professions, but, as Sir John Harrison with great cogency has pointed out, provide the surest and best means of encouraging the highest talent of Georgetown to leave the Colony. No sort of encouragement is given to the future captains of Industry, Commerce, or Scientific Agriculture, notwithstanding the fact that it is in these directions that the Colony is in the most pressing need of development. Everything is done—and on a generous scale—to promote the professions, but for the important class of producers less than nothing.

SPECIAL COMMITTEE, 1917.

16. The seriousness and absurdity of the policy adopted by Queen's College has not by any means been overlooked by the Education Authorities in the Colony. In 1917 a special Committee appointed by the Governor to enquire into the system of Secondary Education at Queen's College clearly recognised the anomaly and reported in no uncertain terms upon it, adding recommendations with the majority

of which I entirely concur. The Committee very properly laid it down, *inter alia*, that (1) "the primary object of Queen's College should be the benefit of the Colony and the majority of the scholars rather than that of prospective scholarship winners, and the curriculum should be based on that principle," that (2) "it does not seem advisable to arrange the curriculum of the school for the benefit of the Guiana scholar irrespective of the inclination or capacity of the majority of the boys to follow it," and that (3) "the teaching of Science is not to be purely educational or examinational in its aims, but to have a marked practical bias and to be directed towards utilisation of the Botanical, Agricultural and Mineral resources of the Colony."

The Committee then proceeded to draft in outline a curriculum in Science which seemed to meet their views. In the lowest form this was to consist of Nature Study and elementary experimental Science, to which might be added the Nature Study and cultivating of a School Garden. In the middle forms, general experimental Science, including physical measurements and botanical diagrams, was to be continued on broad lines; in the Upper Division of the School, Forms V. and VI., the curriculum was to include Chemistry, Physics and Botany, both theoretical and practical Agriculture and other allied subjects, elementary entomology and biology, for example for which time might well be found.

This very valuable report was in due course presented to the Governor, but it appears to have been entirely ineffective. The old regime, with its venerable adherence to an out-of-date system of examinations is still maintained, and no attention appears to have been paid to the recommendations of the distinguished men who laboured in vain to adapt the curriculum to modern requirements.

SECONDARY EDUCATION AT NEW AMSTERDAM.

17. At New Amsterdam where two Secondary Schools—one for boys and the other for girls—have been founded under the ægis of the Canadian Mission is to be found a ray of light. At the Boys' School an excellent workshop, suitably and adequately equipped, has been built and some of the boys are taught constructively through their hands as well as their eyes and ears. But unfortunately the examination octopus has spread its all-embracing tentacles here as elsewhere, and pupils are required (probably against the conviction of the Headmaster and the Governing Body) to lay aside their craftsmanship and devote themselves to the Cambridge Local syllabus.

SECONDARY SCHOOL FOR GIRLS.

18. At the Girls' School at New Amsterdam, which caters for boarders, great stress is laid upon practical and domestic science in all its various forms, and its effect in producing capable all-round practical citizens is as marked as it is welcome. It is unfortunate that the numbers at this school are so small, but I have no hesitation whatever in saying that the general training provided there is good enough to serve as a model for every Secondary School for girls in the Colony.

In Georgetown there are two schools for girls, the Bishop's High School and the School attached to the Ursuline Convent. Both are obviously well conducted but both are compelled by force of circumstances to subordinate themselves to the examination system. In neither case is any provision made for practical domestic work, and the girls go forth into the counting-house, the shop and the home very meagrely equipped to face the realities of every-day life.

INDUSTRIAL EDUCATION.

19. The privilege of receiving industrial training is (as I have already indicated) reserved for orphan boys and boys of the criminal class. This aptly epitomises the view of the Colony of the place that Industrial Education should occupy. The ranks of skilled industry are thus officially recruited from the crimi-

nal or the unfortunate class. Comment is hardly necessary. It is clearly axiomatic that the Colony in its present stage of development requires, above everything else, a concentrated effort to produce from amongst the best of its school population a corps of skilled mechanics and intelligent citizens, and that, so far from limiting its efforts to the lowest stratum of society, everything ought to be done to encourage the best and most gifted boys to undergo a course of training based upon the intellectual and practical requirements of scientific industry.

ONDERNEEMING.

20. The Industrial School at Onderneeming is all that it should be, and is managed by Captain Beckett with the greatest skill. The discipline is strict, but it is admirably tempered by humane considerations from which humour is by no means wanting. The relationships between the boys and the Superintendent appear to be exceedingly pleasant. Both in school and on the estate hard work is expected of the boys, and, as far as I could see, is cheerfully given. The time-table of the School consists of two hours during which the boys devote themselves to Reading, Writing and Arithmetic under the direction of an experienced Schoolmaster, who, though seriously overworked, discharges his duties efficiently and with success. The rest of the time is spent upon the estate, where the boys are introduced to a variety of occupations which attract and hold their interest. The aim of the Institution is to be self-sufficient. One detachment of boys attend at the quartermaster's Store, another work at the baker's shop, another at the rice, corn and coffee mills and at the factory where concentrated lime-juice and oil are manufactured. Other boys work in the gardens, others in the various departments of the farm, tending the cattle, pigs, horses and poultry. Others work in the cocoa and coffee groves: others again tap the rubber trees and cut lumber in the bush. All the food consumed in the School is prepared and cooked by the boys.

Orderly conduct and orderly employment, whether in the schoolroom or on the estate, the cultivation of self-respect, trustworthiness, manly independence and a sense of the dignity of honest toil are the ideals, which the Superintendent sets before the boys, and appearances go to show that he is successful in implanting them. Few boys, after a full course of training at Onderneeming, cast a backward glance upon their past lives, or come again within the clutches of the police; the majority leave the School with characters reformed and strengthened, with a wide knowledge of the arts of tropical husbandry, and plant life and general moral economy, with minds and bodies trained to embark upon some skilled trade. Neither is the social aspect of life neglected. Cricket and football are played, and a band has been formed, which if not very musical is not without its merits; whilst other social enjoyments are provided from time to time for those who have earned them by their work and conduct. Physical health is not forgotten. A dispenser is constantly upon the premises, and his work is under the supervision and direction of the local Medical Officer.

The success of this School, and of the theory upon which the training of the boys is built, can scarcely be open to doubt. Its purpose is very well fulfilled and it is destined to play a still more important part in the corporate life of the Colony. But, if the fullest benefits are to be reaped, the Government should be a little more generous in their support. The present out-buildings are not very suitable—a byre, for example, where the cattle face each other, and breathe into each other's nostrils, a milk store which is close to a pig-stye, a machine house which is too small for its purpose, are the most obvious defects; all of which could be easily remedied if the Public Works Department supplied designs and a few master-craftsmen. All the rest could be done by the boys.

BOARD OF INDUSTRIAL TRAINING.

21. In one other direction besides the Industrial School at Onderneeming which is under the control of the Department of Science and Agriculture, an attempt, feeble though it be, is made to create an appetite for Industrial training. The

Public Works Department makes an effort to organise and carry out a course of instruction for apprentices in various crafts, thus supplying the most urgent need of the Colony. The report of the Head of this Department has been presented to the Court of Policy and published. It makes depressing reading. From it the following points emerge:—(1) that 55 Bursaries for apprentices were awarded by the Government, (2) that of these 17 have been satisfactorily completed, 18 being current, (3) that no less than 20 have either lapsed or been forfeited for misconduct. Such figures do not speak well for the isolated effort on the part of the Department to fill a gap in the Educational machine.

Responsibility for the failure to attract and hold apprentices cannot be said to lie altogether at the door of the Industrial Board. In reply to a Circular addressed to firms suggesting that pressure should be brought to bear on the apprentices by means of a form of indenture, under which they would profit from the technical classes instituted by the Industrial Board, the following reply (extracted from the Official Report) was received from one of the Masters which is described as typical:—

“ We find we get better results from the young men we employ when there is no deed of apprenticeship signed. They seem to think that when they have signed any indenture of apprenticeship their position is secure and they can do just whatever they like, and we can do nothing with them, unless we report them to the Board of Industrial Training; therefore we do not take any more apprentices under any signed deed. We generally employ them as they come to us and ask for work, and when they do not suit us we dispense with their services.”

Such is the lamentable story of the Public Works Department. To such depths has Industrial Education fallen.

AGRICULTURAL EDUCATION.

22. Agricultural Education has had a chequered and fleeting history. Various attempts have been made to solve this problem but so far without marked success. The outstanding fact is that no preparatory work is undertaken either at the Secondary or Primary Schools to supply the Department of Science and Agriculture, which is responsible for advanced agricultural training, with recruits. No stimulus has been applied to boys to take up this kind of work and the result is that it is difficult to find apprentices ready to work at the Botanical Gardens. At the present time there are only 14 or 15 boys in training. These are housed in quarters adjacent to Queen's College. A small proportion of their time is spent in the schoolroom where they revive forgotten memories of Arithmetic, English and the elements of general scientific knowledge, the rest is spent in doing practical work, which, as it nears the end of the course, becomes specialised, at the Botanical Gardens or in the laboratories connected with them.

The value of such training which is under the direction of Sir J. Harrison, who is recognised as one of the greatest chemists and geologists in the world, is unquestionable, and the fact that so few students can be induced to take advantage of it is one of the tragedies of the educational system of British Guiana. If the curriculum of the Secondary Schools were more in harmony with the scientific view of the eminent Head of the Department of Science and Agriculture, and if the policy of the Government for the cultivation of the vast tracts of fertile land in the Colony were brought into close relation with the educational work done at the Botanical Gardens a solution of one of the greatest problems of the day would be in a fair way of being solved. As matters stand the rich opportunities which the Botanical Gardens afford are scarcely realised. The scheme is starved by the Secondary Schools, who send no well-educated boys to take advantage of it, by the Government of the Colony who make no attempt to encourage small proprietors, by the great community of sugar-planters who have not yet grasped the opportunities that may arise from employing on the estates young men who have for several

years studied under skilled direction the science of plant-life and geological chemistry.

TWO SUGGESTIONS.

23. A propos of the Agricultural Apprentices two suggestions made by Sir J. Harrison may be alluded to here.

The apprentices are of course paid and part of their payment is withheld, and put to their credit at the Savings Bank, with the idea that when the period of apprenticeship is completed the student should have a fund at his disposal from which he could equip himself when he embarks upon his career. The suggestion is that the Government should reward good work either by doubling the amount saved by the student, or by making a grant of land to a student, who wished to start upon an agricultural career. The cost to the Exchequer would be comparatively small, but it would certainly provide a great stimulus to the young man who was ambitious of starting a small farm or a market garden. I commend such a proposal to the Government for their serious consideration.

The second suggestion is one which might equally well be kept in view for future policy. I have already alluded to the Guiana Scholarship, which is limited to students of proficiency in academic learning. It is suggested that the whole scholarship scheme should be reconsidered and revised in such a way that students, who give promise of being highly proficient in agriculture, geology, sugar chemistry or some cognate science, should be eligible, if not indeed given the preference over all other types of student. The strength of this proposal lies in the fact that agriculture in its scientific aspect, including the cultivation of sugar and rice, is precisely the industry which it is the interest of the Government to develop and subsidise by every means at its disposal.

REFORM.

24. From what has already been said it will be evident that the time has arrived when reforms, and reforms of a drastic and fundamental nature, must be faced and carried into effect. No tinkering with the present machine can possibly be effective; reconstruction alone will serve the very necessary purpose of bringing the Colony abreast of modern conditions and developments.

Broadly speaking reform will fall under two main comprehensive heads—(1) the general reform of educational policy and (2) the reform of administrative control. There are of course other details of extreme importance and necessity, to which allusion will be made but the chief object of this report is to focus the attention of the Government on the fundamental principles which should, in my opinion, govern their future attitude towards education!

HEALTH AND SANITATION.

25. The first and most urgent consideration should be that of the health and physical welfare of the children. The sanitary condition of the great majority of the schools which I have seen is simply deplorable and cannot but be a menace to the public health and a great impediment to the efforts made by the Surgeon General's Department to ameliorate the life of the community. Hand in hand with an improvement in sanitation and in the sanitary arrangements of the schools every attention must go to an improvement not only in personal hygiene but in the common decencies of the civilised people. In other words the very greatest importance should be attached by the Government to the cultivation in the schools, and amongst all classes of children, of habits of self-respect and respect for others. Sanitation and the practice of sanitary and decent habits should be regarded as essential to moral and physical efficiency, as one of the conditions upon which grants from public funds should be paid, and as the acid test of civilisation. In the interests of sound education, moral as well as intellectual, every school in the Colony should be required to satisfy the Surgeon General's Department that it is whole-

some from a sanitary point of view, and every scholar attending the schools should be subjected at least once, if not more frequently, during his or her school life to fairly detailed medical inspection. Careful records of these inspections should be kept at the Education Office, and the condition of the schools and of the children should form a very important part in the Surgeon General's report to the Government on the health of the Colony.

HOO-K-WORM.

26. Before leaving the subject of health attention should be drawn to the prevalence of the disease known as "hook-worm" which undermines the moral and physical stamina of those who suffer from it. At the Commission some striking evidence was heard of the ease and completeness with which this disease could be overcome provided only that properly organised mass treatment was made compulsory. The treatment, it is alleged, is simple and not as a rule attended by any sequelæ of an unpleasant type, and it is therefore recommended that compulsory treatment should be enforced and carried out by the Surgeon General's Department. There is at least as much to be said in favour of the elimination of this scourge as in the acquisition of the elements of Reading or Arithmetic.

A NEW OBJECTIVE.

27. Next to sanitation must come a reconsideration of the purpose for which a school, whatever its grade, exists. To the familiar question the familiar answer—"to cultivate a good citizen"—still holds good. But to be satisfying to the teacher at his desk, the employer at his counting house, the engineer at his works, the farmer in his fields, the philosopher in his study, and lastly to the man in the street, something more must be added. No boy or girl can be described as educated or even as on the road to education, who has not been taught to use all his faculties, who cannot use hand as well as eye and ear, who cannot apply his intelligence and (if need be) manipulative skill in the world in which he lives.

EDUCATION THROUGH THE HAND.

28. And it is precisely here that the failure of the schools and the training given in them makes itself apparent. Boys and girls, whether in Secondary or Primary Schools, are taught and trained as though life for them consisted of one long span of intellectual leisure. The appeal that is made to them is to memorise and store up (often a very meagre quantity) the elementary facts of History, Geography and Science and not to do or act for themselves. They are taught to prefer sloth, which is speciously intellectual to action, and, when they reach adolescence and manhood, their ambition is to sit upon an office stool and add up figures or check invoices rather than to expend their energy in productive work.

FALSE IDEALISM.

29. For all this the false idealism of the schools cannot but be held to be largely responsible. The curricula both in Primary and Secondary Schools are obviously too academic and too remote from the actual facts of life. Constructive work, the training of the mind through hand and eye, is almost entirely neglected; no serious attempt is made to arouse and cultivate in the children abiding interests in their surroundings; no effort is made to penetrate the secrets of scientific husbandry or to interest the children in the countless wonders of Nature in which the tropics abound, and the attractions of biology, geology and entomology are passed by in favour of the "Anarchy of Stephen's Reign" or "the religious difficulties of Queen Elizabeth."

That the type of Education given in the schools is in urgent need of change, that indeed their whole outlook and perspective demand reform, there can be no shadow of doubt. What is needed is the substitution of a new for a worn-out and moth-eaten idealism. The aim should be to produce and train boys and girls who,

so far from having a distaste for manual industry and occupation, take a pride in their technical skill and whose object in life is to become so proficient as to develop into masters of their craft and masters of their own destiny. The failure to implant these ideals is the measure of the failure of the schools.

In every Primary School of the Colony, where it is possible to do so, provision should be made for some form of manual instruction : for the boys in rural schools certainly, and possibly for the girls as well, opportunities should be found for doing practical work in school gardens and no inconsiderable amount of the time-table should be devoted to this occupation. For the boys, whether they live in towns or in the country, there should be a compulsory class in simple woodwork and every girl throughout the length and breadth of the Colony, whether she attends a Secondary or Primary School, should be expected to become proficient in needlecraft and cookery. Further, these subjects should not be regarded as by-products and relegated to some unimportant part of the curriculum. They should be regarded as being as important as Arithmetic or Geography or any other academic subject ; they should be taught by masters and mistresses who are as skilled as any other members of the staff and these masters and mistresses should be held in as high respect as their fellows who lead less laborious lives.

SCHOOL GARDENS.

The work in the school gardens should be the natural outcome of Nature lessons in the class-room and the handicraft allied with the drawing of simple designs and specifications.

NEEDLEWORK.

As regards needlecraft every girl or nearly every girl should have been taught to plan, cut out and construct by her own unaided efforts all under-garments commonly used by men, women and children, and when they have acquired this skill they might be promoted to a class where the elements of dressmaking were taught.

The absence of technology, the application of manual skill to abstract knowledge, is the most outstanding and noticeable defect of the educational system of the Colony. No child, unless, as I pointed out, he is an orphan or has graduated by passing through a criminal court, has any opportunity of acquiring an introduction to a skilled trade. Here clearly there is need for constructive reform. A Technical School should be built with as little delay as possible to serve Georgetown and the surrounding districts.

PRACTICAL IDEALISM.

30. The aim and purpose of such a school should be clear and definite—to train boys and girls from an early age to adopt a scientific attitude of mind to the essential industries of the Colony. The beginnings of such a movement will necessarily be slow and in some degree tentative : later experience will no doubt modify the details of the scheme ; and it is certainly to be hoped that additions will be made to it as years go by.

THE NEEDS OF THE COLONY.

31. What then are the primary needs of the Colony? As far as my own investigations have gone the answer would appear to be—firstly, the development of skilled agriculturists who can bring some scientific knowledge of agricultural chemistry, of agricultural machinery and of entomology to bear upon the vast tracts of land that await cultivation ; of men who have gained some knowledge of forestcraft, surveying, sanitation and even the building and repairing of houses. Secondly, the development of a corps of trained and skilled artizans who can bring scientific knowledge of the elements of Chemistry, Physics and Mechanics to bear upon their work in the engineering shops and in other departments where electrical and mechanical skill is needed. Thirdly, the development of clerks, accountants and

secretaries who can take their place efficiently in the commercial house, who have some knowledge of a foreign language (preferably Spanish) and who have had some training in Shorthand, Typewriting and modern methods of Book-keeping. Fourthly, the development of a large and (it is to be hoped) ever-increasing number of girls who have been trained in the necessary domestic arts which will fit them to become competent housewives and mothers of a future generation of children. For these cookery, needlework, hygiene, the nursing of the sick, the care of infants, would be the staple subjects of training. And lastly,—perhaps the most important of all needs—the development of a new generation of Teachers who can bring to their art new ideas and minds trained to consider the best means by which the education of the young can most profitably be attempted.

A TECHNICAL SCHOOL.

32. If these be in fact the most urgent present needs of the Colony the educational foundations upon which a Technical School should be built become clear. The school would be divided into five different departments—

(1) *Agriculture und Building Construction*, which would include Nature Study (developing later into Botany), the study of growing crops (rice, plantain, cane, rubber, cocoa and cocoanut), insect pests and insecticides, the elements of agricultural chemistry, mensuration and the drawing of plans and specifications, wood and metal work, the clearing of the bush, surveying, levelling, water services and conservancy, foundations and the building of a house, sanitation and other necessary and kindred work. As the school develops in numbers and in power this department might be sub-divided, one part dealing more intensively with agriculture, the other with building.

(2) *Science*—pure and applied—which would include in chemistry, physics and mechanics, mensuration, drawing of specifications, electricity, engineering, the repairing of various motor-engines, carpentry and plumbing—the two latter to be taken in close alliance with practical courses in wood and metal work.

(3) *Commerce* which would include special training in English (and possibly a foreign language) together with commercial geography, shorthand, book-keeping and accountancy, and in the case of older and more advanced pupils elementary economics.

(4) *Domestic Economy* which would include English, arithmetic (keeping of household accounts), hygiene (including sex hygiene), cookery, laundry, the care of infants and young children, first-aid, sicknursing, needlecraft and dressmaking.

(5) *Training of Teachers*. This department would be for every man and woman who had normally reached 18 years of age. For these the course of training would consist of one or more manual occupations, science (especially in its relation to agriculture), advanced English, hygiene, the History of the Empire, and the theory and practice of education. The training of intending Teachers during adolescence and the period of apprenticeship will be alluded to later.

ADMISSION TO THE TECHNICAL SCHOOL.

33. It will be necessary to exercise very great care and much discrimination in selecting the boys and the girls to be admitted to the Technical School. The best method, though it is not suggested that it is altogether a satisfactory one, would appear to be by holding an examination of the children in the Primary Schools who have reached the age of 12 or who have completed a Standard V. curriculum. Those who provide clear evidence that they can read with understanding, that they can write and have mastered the elements of Arithmetic, might be regarded as eligible for admission to the Technical School; the twenty at the head of the examination list being selected as scholars or free-placers and the remainder as fee-paying pupils. In normal circumstances not more than 60 would be selected, but for

the first two years, if the educational condition of the children seemed to warrant it, 100 might be drafted from the Primary Schools to the Technical School.

A THREE YEARS COURSE.

34. The course of instruction would be for three years (12-15) and admission to the Technical School would be conditional upon the parent giving a satisfactory guarantee that his child would not be withdrawn until he had reached the age of 15, or that, in the event of his failing to do so, would guarantee the payment of the normal fees of the school.

PREMISES.

35. Premises of a suitable type will of course be necessary, and here I would enter a caveat against any attempt to convert a disused hospital or lunatic asylum or any other derelict or unwanted public building into a school. The services of an architect who has special experience of building schools of this type should be secured and ample accommodation should be provided for the workshops, laboratories and class-rooms. A good site, within easy reach of the town and close to the Botanical Gardens, where much practical work could be done with the permission of the Director of Science and Agriculture, appears to be available. The land is the property of the Government and is about four acres in extent.

STAFFING.

36. The staffing should be on a generous scale. As Principal a man should be sought who, in addition to possessing high academic qualifications in some branch of Science, has good organising powers and first-hand experience of Technical Schools. A Teacher on the staff with special knowledge of tropical agriculture is essential, and the Governing Body will probably find it wise to seek the advice of the Educational Service of India, or of the authorities of the Imperial College of Tropical Agriculture at Trinidad in their effort to secure the services of such a man. A highly trained and competent Teacher of Domestic Economy will be less difficult to find. Suitable candidates will probably be forthcoming from many Schools and Colleges of Domestic Training in England. A Normal Master to take charge of the professional side of the training of Teachers will of course be appointed.

TRAINING NOT TO BE ENTIRELY VOCATIONAL.

37. Reference may here be made to one important educational point in connexion with the training to be provided at the Technical School. In view of the fact that the pupils will be very young and in order to avoid the possibility of making the training too limited in scope it is important that opportunities should be provided for carrying on the general education of the boys and girls in English and Mathematics. In the case of the First Year pupils not less than half the time of the time-table should be devoted to these subjects and, in the case of the Second or Third Year pupils, not less than one-third.

It is further suggested in the interests of economy that some arrangements might be made by which some members of the staff of Queen's College could undertake responsibility for part of the programme of the Technical School and *vice-versa*. Some such accommodation is not beyond the limits of intelligent organisation. In the Training of Teachers Department and elsewhere the services of some of the Inspectors might also be usefully employed, thus bringing the Training College students into close touch with the actual work that is being done or ought to be done in the Schools.

THE PRINCIPLE OF DIRECT GOVERNMENT RESPONSIBILITY.

38. The establishment by the Government of a Technical School in Georgetown will be the first step in the development of a principle which requires emphasis. It has already been pointed out that in the case of Primary Education

the Colony has depended for the supply of schools upon the voluntary effort of various religious denominations, that the payment of Teachers' salaries and other small contributions represent the measure of the interest of the Colony in education and that no direct control or means of stimulating the work of the schools exist. That the Government should play a greater part in the education of future citizens, that it should exercise greater influence generally and accept direct responsibility are matters which scarcely admit of argument. They are palpable and self-evident. It only remains, therefore, to insist that the principle should be put into operation as soon as may be.

Both in Georgetown and in many of the rural districts there are too many schools, though the accommodation may not exceed the needs, and the result is defective organisation and unsatisfactory staffing. If, and when, the Government accepts full responsibility, these defects can be remedied and more satisfactory returns may be expected from the public money invested in education.

A MODEL PRACTISING SCHOOL FOR GEORGETOWN.

TWO NEW COLONIAL SCHOOLS AT BUXTON.

39. In Georgetown a Model School to be used by the students-in-training for the Teaching profession should be provided and used for demonstration purposes. At Buxton and Friendship, which are at present served by five schools, two Colonial Schools, one for boys and one for girls, should be established catering for the whole population of these villages and officered by a staff of properly qualified Teachers. Here an immediate beginning should be made in the working out of State responsibility. It might be followed gradually in those villages where there were too many schools and where inter-denominational rivalry impedes the progress of education. Of these there were many examples given in the evidence of Mr. Moulder.

CENTRAL OR TRADE SCHOOLS.

40. An interesting problem connected with the proposal to establish a Technical School in Georgetown arises. It will be remembered that it has been proposed to recruit the latter by submitting all children of 12 years of age and all children who have completed Standard V. to tests in English and Arithmetic with the object of selecting the best of them for more advanced training. But what of those who fail to satisfy these tests, who never reach the level of Standard V. proficiency? Clearly something must be done for these, many of whom may, if treated by other processes of education than those commonly in use at the Primary Schools, develop into useful and valuable men and women. For these—the derelicts or misfits of the Primary School system—two schools, one for boys and one for girls, should be provided where an effort would be made to train them not exclusively through eyes and ears but through the use of their hands and manual activities. The main aim of such schools would be to cultivate dexterity of hands and to arouse and stimulate the mind by methods involving practical workmanship.

A FOUR YEARS PROGRAMME.

41. It is not suggested that all these reforms should be put into operation at once. Considerations of public finance forbid that. It is, however, hoped that a four-year programme will be drawn up and submitted to the Combined Court and that in this programme the first item be the building and equipment of a Technical School in Georgetown with a Training Department for Teachers with a Model Practising School attached; the establishment of two Colonial Schools at Buxton and Friendship which would be quickly followed by two Central or Trade Schools for the older boys and girls in Georgetown.

REFORM IN ADMINISTRATION.

42. So much for educational policy. It now remains to consider how best to secure administrative efficiency. The history of previous attempts to devise some machinery for carrying out educational enactments has already been referred to at the

beginning of this report. Boards of Education have been established and demolished; some have been advisory councils; others have possessed executive authority. None have given satisfaction. None have succeeded in gaining the confidence of the public or of the Government. In these respects the existing Board is no better, if it is no worse, than its predecessors. During the sittings of the present Commission example after example was brought to light of its general inefficiency and of its inability or unwillingness to put into operation the laws passed by the Legislative authority. "The Education Board, as at present constituted, does not work satisfactorily" writes the late Commissioner of Education in a memorandum issued in May, 1924, and whatever one who is accustomed to an orderly civil service may think of the propriety of the head of a department allowing such a memorandum to be issued over signature the statement must be acknowledged to be strictly in accordance with the facts and his long experience. One illustration of many may be taken to illustrate the impotence of the Executive authority. The appointment of a Head Teacher and of all the Assistant Teachers of a school rests with the Managers of the school; their salaries are paid by the Government monthly on a requisition from the Commissioner of Education. The conditions on which the salary is payable by the Treasury are (1) that the school has been kept open, (2) that the registers have been accurately kept, and (3) that the Teachers have been *bona fide* employed. Nothing so obvious as a guarantee of efficiency and satisfactory conduct is asked for, and the Commissioner has no power to require Managers to dismiss a Teacher or to terminate his service on grounds of inability to fulfill his duties. All that the Education Department can do when an Inspector finds that a Teacher is incompetent is to keep on reporting the fact to the Managers and to hope that in due course some action will be taken. Meanwhile the Commissioner has to sign the form authorising the payment of the Teacher from the Treasury. By such means is the administrative authority of the Education Department reduced to a sham and a delusion.

It is therefore not difficult to see that some steps must be taken without loss of time to see that law is duly respected and carried out both in the spirit and the letter.

43. Another weakness in the administration of Public Education is to be found in the fact (already noticed) that various bodies are made responsible for various branches of education. For Primary Education the Commissioner is supposed to be responsible; for Secondary Education the Principal of Queen's College is the recognised functionary; whilst Agricultural Education and Industrial Training are under the control of the Director of Science and Agriculture and the Board of Industrial Training respectively. There is no unity and no co-ordination. Each department goes on its own way without reference to, or consultation with its fellows. It would be difficult to invent any machinery which could so successfully create chaos and confusion.

What can be done to restore orderliness and efficiency? Clearly nothing, unless the Court of Policy decides that its Ordinances shall be carried out and provides some machinery which is capable of doing so.

EXECUTIVE AUTHORITY TO BE STRENGTHENED.

The first step to be taken is to strengthen the authority of the Executive, and the second to unify and co-ordinate all forms of education and bring them under one central administrative authority.

ALL FORMS OF EDUCATION TO BE UNIFIED.

As regards unification there can be little room for differences of opinion. It will be unanimously admitted that all forms of education—Primary, Secondary, Technical, Industrial and Agricultural—can best be dealt with by concentrating them at one office, there to be controlled by one officer or by one corporate body,

who will be able to survey the whole field of public education and to link up its component parts into one complete whole. The recognition of this principle—the principle of educational unity—must of necessity be the pre-requisite of efficiency in administration.

WHAT IS TO BE THE AUTHORITY? THREE ALTERNATIVES.

44. And now for the machinery. Of what nature and composition shall it be? Three main alternatives appear to exist—(1) to create a Board of Education with full executive powers; (2) to create a Board of Education which shall be an Advisory body only and shall possess no executive power; (3) to invest the Commissioner of Education with full executive powers and to hold him personally responsible for the conduct of his duties. There are of course other possibilities but all of them save one would involve insuperable difficulties in practical operation.

As to (1), the establishing of a Board with full executive powers, the difficulties in a Colony where geographical considerations are so great, and means of transport so defective, where there is an entire lack of a leisured class interested in and well-informed on the subject of education, makes the proposal almost impossible. A Board that is to be fully responsible to the Government must meet very frequently; if it is to do its work efficiently it must meet not less than once a week; its members must be quasi-civil servants and might logically expect to be paid for their time and services; failure to perform their duties to the satisfaction of the Government would involve no penalties, if the Board were composed of voluntary members only, and their dismissal from office would not provide any guarantee that their successors would fulfil their duties any more efficiently. Responsibility in fact would be entirely wanting since their chief officer—the Commissioner of Education—might with justice shelter himself behind the valid argument that he only acted on the direct instructions of the Board.

To create (2), a Board, which is Advisory and nothing else, is open to the same objections as have already been mentioned. It would be difficult to find a body of men who would be willing to serve on such a Council and in the event of a conflict of opinion between the Commissioner and his Advisory Board occurring a position of extreme difficulty would arise. Stagnation would inevitably follow and problems would be solved in the worst possible way—by the simple process of doing nothing.

The last alternative (3) is the most simple and efficacious way of dealing with the problem of administration. One officer, fully qualified by academic attainments and by experience of similar duties elsewhere, who started upon his duties with the confidence and good-will of the Government and who was well supported and kept well informed by the Inspectorate of all grades, would probably discharge the administrative and executive affairs of the Colony more effectively than any Board however able or representative its members might be. Business would seldom if ever suffer from congestion, cases could be dealt with as they arose speedily and with despatch, decisions and interpretations of the Code and other regulations would be given without undue delay. Above all and transeending all other considerations responsibility would be definitely fixed.

THE COMMISSIONER OF EDUCATION AND A CONSULTATIVE COUNCIL.

45. Difficulties nevertheless arise in connexion with so simple and logical an arrangement. To begin with there is the human element. The administrator is born—*rara avis in terris*—and is seldom recognised at sight. Then there is the natural unwillingness to entrust the management of public affairs to a single man, be he never so efficient. Safety is to be found in a Committee or a Board where responsibility can be shared amongst the members. And so—*ad infinitum*. Even the officer himself may prefer the assistance of a Council. His duties are varied and

numerous. The opportunities which discussion of problems with a Council provide are often of great value and the moral support which a Council can give adds strength to the position of the administrator.

AN EDUCATIONAL CONSTITUTION.

46. The best solution of the problem of administration would appear to lie in a compromise between (2) and (3)—a Commissioner of Education clothed with full responsibility and assisted by a Consultative Council to whom certain clearly defined duties should be assigned. The scope of the duties to be performed by the Consultative Council would be as follows:—

(a) To review the needs of the Education Department and to assist in the preparation of the Education Estimates.

(b) To review the expenditure of all public moneys voted for educational purposes by the Combined Court and to satisfy themselves that all the necessary audits had been properly carried out ;

(c) To deal with any legal difficulties that may arise in connexion with the supply of new schools, or the removal of any school from the Annual Grant list, the cancellation of any Teacher's Certificate and the dismissal of any Teacher from his or her office ;

(d) To consider any alterations that may from time to time be found desirable in the Code for Primary Schools and the Regulations for Secondary, Technical, Agricultural Schools or Institutions and for the Training of Teachers before they are submitted to the Government for legal confirmation;

(e) To consider the conditions under which scholarships of all kinds are awarded, to advise as to the need for, or desirability of, holding any external examinations and to recommend the kind of examination that would appear to be most suitable and appropriate, to review the general conduct and result of such examinations and to form an estimate of their effect upon educational policy ;

(f) To consider any question, educational or otherwise, upon which the Commissioner may wish to seek advice.

RESPONSIBILITY.

47. It should be clearly understood that responsibility for any action taken would fall upon the shoulders of the Commissioner of Education who should be made personally responsible through the Colonial Secretary to the Combined Court. Careful records of the proceedings of the Consultative Council would be kept and any action taken by the Commissioner against the advice of his Council in any case where an explanation of his conduct was required by the Court would necessarily throw upon him a heavy *onus probandi*.

The composition of the Council should be small enough to ensure rapid and workmanlike discharge of business and large enough to be representative of wide interests. The members—eight in number—should be nominated by the Governor and in order to secure reasonable continuity of policy should be required to serve for a period of five years. The Commissioner of Education would be Chairman; and the Surgeon General an *ex officio* member, whilst not less than two members would be chosen from the Elective members of the Combined Court the remaining four members would probably be selected on account of their interest and distinction in education and of their knowledge of the practical needs of the Colony.

THE INSPECTORATE.

48. The best guarantee for efficiency in the schools lies in an intelligent system of inspection. A good many witnesses in giving their evidence to the Commission avowed their faith in the individual examination of children and expressed a desire

to return to the old system of payment by results. The arguments against this have been again and again summed up by the late Commissioner of Education and there seems to be very little doubt that the balance of expert opinion is unmistakably against it. Some efficient means of control must nevertheless be found to replace the old examination system, and some means of providing a stimulus discovered. The present scheme which depends largely upon a body of Emergency Inspectors is unsatisfactory both from the point of view of the Teachers as well as from that of the Administration, and it becomes necessary to face the fact that if the principle of inspection is to be adopted a staff of Inspectors must be appointed, who are qualified academically and by wide experience of different methods of teaching and different types of schools to discharge the difficult work they will be called upon to perform. The best and only the best men will serve this purpose; a third-rate man of restricted vision and strong prejudices will do more harm than good. The kind of officer that is wanted must possess youth and energy, great tact and an abundance of common sense, patience to deal with the Teacher whose mind moves slowly, but who is willing to give his best, and the power to display righteous indignation where there has been neglect of duty or a disposition to shirk effort. In this connexion one of the pleas put forward by the British Guiana Teachers' Association to the Commission is fully endorsed. Inspectors should not merely be destructive critics, they should be men capable of constructive criticism, who are ready and willing to make suggestions for improvement, and who can, if necessary, demonstrate practically how effective their suggestions can be made. Great stress is laid upon the choice of good Inspectors. They are in many respects the most important parts of the administrative machine and upon their success or failure will depend in very large measure the success or failure of education in the Colony.

THREE MEN ONE WOMAN.

49. As to numbers, it is suggested that four, one of whom should be a woman, would be a full complement. Of these, two men would be resident in the Counties of Berbice and Essequibo, and one man and one woman in Georgetown. In addition to discharging the ordinary duties of inspecting Primary Schools their services—particularly those of the two resident in Georgetown—would be utilised in giving lectures or lessons to the students-in-training at the Training College, which it is hoped will be established, thus bringing the theoretical work done there into close touch with the practical work of the schools. They would also be required to take part in the inspection of all schools where higher education was undertaken. It is therefore important that each Inspector should have special academic qualifications and experience in one particular direction, which would entitle him to appraise the value of the work done in these institutions and to give advice to the Teachers concerned. For this reason it will probably be found that at least two of the Inspectors should possess special qualifications in Science (including work in wood and metal and Agricultural Science) whilst one (the woman Inspector) should be equipped with sound credentials in domestic economy and hygiene.

With machinery constructed of such quality and on such lines the confusion in administration which now exists could in a very short time be dispelled. The cost of the present Inspectorate is returned at £1,659—the estimated initial cost of the suggested Inspectorate would be £1,800. The difference between the two amounts in terms of cash is relatively impalpable—in terms of value and efficiency (and without efficiency all expenditure is waste) the increased expenditure would represent the best possible investment.

EDUCATION COMMISSION.

50. Owing to the fact that the greater part of the time of the Commission has been taken up with the hearing of witnesses and also to the fact that many members of the Commission itself have been unable to attend regularly, because the Com-

bined Court was in session, it has been impossible to review the present situation and future policy as fully as could have been wished. Certain important resolutions have been carried notably (1) the need for the medical inspection of all schools, (2) the need for reconsideration and reconstruction of the curricula in Secondary and Primary Schools and (3) the need for the establishment of a Technical School, which shall include a Training College for Teachers, but definite recommendations on vital points connected with educational policy and administration are not likely to be made before I leave the Colony. On these important issues I have already given my personal views. It now remains for me to allude to certain points which have been brought to my notice during the course of my stay and during the hearing of the evidence and to offer some comments upon them.

(1)—THE EVIDENCE.

51. The number of witnesses who gave evidence was considerable and they may be regarded as fairly representative of the interests of the Colony. The Managers were by far the most numerous and the majority of these were Clergy, representing denominational schools and interests. The views of the teaching profession were put forward by the Principal and Vice-Principal of Queen's College, the Head Mistress of the Bishop's School for Girls and by a Deputation of the British Guiana Teachers' Association. Four witnesses illustrated the points of view of the employers of labour. Sir John Harrison, the Director of Science and Agriculture, provided from the ample store of his scholarship and detailed knowledge of the Colony testimony to which serious consideration cannot fail to be given. The Surgeon General dealt with educational problems from the point of view of health and sanitation, whilst one or two other witnesses elaborated their views on particular aspects of the problems to be solved by the Commission.

MANAGERS.

52. The attitude of the Managers generally may be summed up as one of rigid conservatism—save perhaps as regards the curriculum where many thought some improvements were possible. The general condition of the schools in their opinion was not seriously unsatisfactory, and, where an unsatisfactory state of affairs did exist, the remedy lay with the Government whose grants-in-aid were insufficient. Difficulties in connexion with premises and equipment were to be met by further payments from the Public Exchequer. As to the establishment of Colonial Schools the Managers as a body, where they were not openly hostile—one witness described them roundly as “the abomination of desolation”—were clearly apprehensive of the results that might ensue. All mildly supported the provision of a Technical School in Georgetown but, apart from this, no constructive suggestions were forthcoming.

PRIMARY SCHOOL TEACHERS.

53. The Primary School Teachers, as represented by the Deputation of the British Guiana Teachers' Association, displayed a similar conservatism. The greater part of their evidence was designed as a defence of their position and their work. They proceeded to demonstrate that education had greatly improved of recent years and then provided the Commission with an account of the circumstances which accounted for its inferiority. They very properly alluded to the obvious defects in the schools, such as lack of proper equipment and inadequate staffing. They commented severely, not apparently without justice, upon the methods of inspection and expressed their dissatisfaction with the examinations as at present conducted. Their constructive suggestions were limited to (1) increased salaries, and (2) the appointment of an experienced Teacher as an Inspector of Schools. The abolition of average attendance as the basis for estimating grants was suggested.

SECONDARY SCHOOL TEACHERS.

54. The professional evidence given on behalf of Higher Education reached the high-water mark of conservatism. The existing *status quo* was defended with vigour and single-minded conviction. No radical reform in the aim and objective

of Secondary Schools was necessary and even the tyranny of the examinations was regarded with feelings amounting almost to religious fervour. Suggestions for reform—even reform in detail—were looked upon with deep suspicion and ill-disguised disfavour.

EMPLOYERS.

55. The criticisms of the Employers (Business men and Planters) were as caustic as they were clearly defined. The Head of one of the State Departments commented upon the dearth of apprentices and the apathy of such apprentices as there were; the Manager of a large sugar estate urged the need of training children to recognise the dignity of labour, whilst a third, a Director of a highly-organised industry, in a very statesmanlike review of the whole educational machine pointed out the defects which existed in vivid and lurid lights. The Employers alone, and particularly the Employer to whom reference was last made, contributed constructive suggestions of value. These embraced the whole field of educational activity from the Primary School upwards and included advice on such important matters as sanitation and hygiene, the possibility of encouraging craftsmanship, the relation of the schools to industry in general, and to the vital necessity of cultivating the power to learn, the necessity of setting a standard in efficiency, of establishing an interest in Nature, of cultivating thrift, good manners, a sense of loyalty to King and Empire, and a pride in the Colony. There was no evidence advanced by the Employers which suggested a desire to economise in education: on the contrary they all applauded the proposal to found a Technical School and more than one agreed that the gradual establishment of Colonial Schools would have the effect of raising the general efficiency of denominational schools. Practical common sense, tinged with high idealism, was their contribution to the evidence.

SIR JOHN HARRISON.

56. Reference has already been made to some of the evidence given by Sir John Harrison. The prime importance of scientific agriculture was the core of his address. Land existed in plenty and the human material to cultivate it was at hand. All that was needed was skilful training. Expenditure of thought and money was well worth while, as previous experience tended to show. School and District Gardens, worked on an economic basis, supplied the key of the problem and schools of all grades, not excluding Secondary Schools, could play their part in this common enterprise. A speech full of suggestions, all of which were practical, concluded with a strong recommendation to reconsider the aims of Secondary Education and the whole Scholarship system, especially the conditions which governed the Guiana Scholarship.

THE SURGEON GENERAL.

57. The last evidence to which reference need be made was that of the Surgeon General. Dr. Kelly left the Commission in no doubt as to his views on the lack of sanitation in the schools and lastly of his opinion as to the need for a strict and a regular medical inspection of all school premises and school children.

(2) -THE TRAINING OF TEACHERS.

58. The method by which recruits for the teaching profession are obtained are by no means satisfactory. Boys and girls are appointed by the Managers of Schools. They are eligible at any time between the ages of 14 and 16, and the intellectual test which they are required to undergo to prove their fitness is that known as the Primary School Leaving Certificate.

PUPIL TEACHERS.

The Code lays down certain regulations for the training of Pupil Teachers and prescribes annual examinations to test their progress. But, as far as I am able to ascertain, nothing is done to prevent the

exploitation of these young apprentices, who appear to work as Teachers throughout the school time-table and to work as students before or after these labours are undertaken. A further point which has not escaped my observation is that in the case of girls the instruction is invariably given by a man, and no precautions are taken to avoid circumstances that may compromise both teacher and pupil. Whether all the regulations of the Code governing their instruction and training are fulfilled or not is at least open to doubt. But upon two points there can be no doubt whatever—(1) that the principles, upon which the teaching profession is recruited, are open at more points than one to strong adverse criticism, and (2) that the professional in-breeding that obtains, under which a Head Master trains pupil teacher after pupil teacher year after year, cannot but be highly detrimental to a race of young teachers.

In Rural Districts, where schools are very remote from one another, the present Pupil Teacher system must necessarily be continued, but in districts, where the schools are within reasonable distance of each other, some attempts should be made to collect the Pupil Teachers two or three times a week at a common centre, and to give them corporate instruction on lines approximating as nearly as possible to those of a Secondary School. In Georgetown and New Amsterdam all candidates for Pupil Teachership should be required to attend either a Secondary or a Technical School full time, until they are 16 years of age, and half time from that age to the completion of their apprenticeship, the remaining half being spent at selected Primary Schools. By such means only is it possible to hope for a new generation of Teachers which will be superior to the present. Mere instruction and the acquisition of a little text-book knowledge at the hands of the Head Master of a Primary School is not enough. If a young Pupil Teacher is to develop into a competent certificated Teacher he must in his early life be subjected to the broadening influences of a Secondary School and be brought into contact with a type of Teacher whose professional career is not circumscribed by experience gained at a Primary School.

STUDENTS-IN-TRAINING.

59. One word as to the course that should be adopted at the Training College which it is hoped will soon be established. The very greatest care should be taken to avoid making it too academic on the one hand or too pedagogic on the other. Literary studies there must be; the study of history is indispensable, physical training, music and mathematics will not be neglected, and special care will be devoted to the theory of education. But Natural Science in some shape or form, whether it be biology, geology, the study of animal, insect or plant life, or agricultural chemistry, ought to be the predominating feature of the College. And with this study should go some training in manual dexterity, some exercises in craftsmanship, some application of theoretical science to raw material, and, in the case of women, special courses in hygiene and needlecraft. Under such conditions only can future generations of Teachers be brought into sympathy with creative and industrial work, and to recognise to the full the real meaning and force of hand and eye training for the young.

(3)—SALARIES OF TEACHERS.

60. This is a problem which is essentially local and upon which experience outside the West Indies would be of little assistance. The British Guiana Teachers' Association has already incorporated a plea for better pay in their memorial to the Commission, and doubtless the case which they have presented will receive due consideration from the proper authority. All will agree that the Teacher, who discharges his duties conscientiously and well, is worthy of something more than a living wage, that "a disgruntled Teacher is a social danger," that the teaching profession ought to be made attractive to men and women of intellect and initiative. The difficulty arises when an attempt is made to equate so large a class of practitioners with any other class in the Colony who are occupied in other skilled trades or professions.

Within the ranks of the profession itself the problem is more easily solved. Head Teachers obviously should be paid more highly than Certificated Assistant Teachers even though they be in charge of small rural schools. Teachers who have been through a course of training may reasonably claim to be paid on a higher scale than those who have not been trained. For Assistant Teachers the class of certificate may usefully be taken as the basis of their scale, whilst for Head Teachers it is difficult to see how the average attendance at a school can be avoided as one of the considerations governing their rate of pay. To be Head Master of a large town school is one of the legitimate ambitions of all Teachers and it can scarcely be denied that the efficient discharge of the increased responsibilities of directing a large staff and dealing with a large number of children ought to be rewarded by a higher salary than that which can be earned by the Head Teacher of a small school.

INCREMENTS.

61. It is recommended that no increments be given to Certificated Teachers until four years after they have received their certificates. After this period of probation the increments should be automatic and annual, but subject to refusal if a report is received from the Managers or an Inspector seriously reflecting on the diligence, conduct or efficiency of the Teacher, but no deduction should be made from any Teacher's salary without at least six months' notice being given and issued on the direct authority of the Commissioner.

FINES AND DEDUCTIONS.

62. No interim fines or deductions of any kind should be made from the monthly salary of any Teacher. The present system of imposing monetary penalties upon Teachers for negligence or misconduct should be abolished forthwith, since it conveys the suggestion that gross carelessness, dereliction of duty, and even misconduct can be condoned by a money payment. The principle lying at the root of this system of fines is faulty and indefensible, and is moreover degrading to the profession as a whole. In cases of serious moral misconduct, such as the deliberate falsification of registers or other school documents, the Teacher should be discharged from the public service and his certificate cancelled, but in cases where mistakes have arisen through oversight, error of judgment or some other excusable cause the Teacher should be warned that if similar complaints are established his annual increment will be stopped. It is of course understood that any Teacher who is discharged from his office may appeal direct to the Consultative Council and, if necessary, from that body to the Governor, or that he may, if he thinks fit, proceed against the Managers or Commissioner for wrongful dismissal in the ordinary way through the Law Courts.

The salaries of Teachers who possess no recognised qualifications should be at two flat rates—one covering the first ten years of service, the other on a considerably increased scale for any period of service above and beyond ten years. Teachers of this class should not be eligible for pension.

(4)—GRANTS.

63. The present policy of awarding grants might well be reconsidered. Under existing regulations grants are made (1) to defray the salaries of Teachers; (2) for the purpose of providing and maintaining suitable buildings, books and apparatus; (3) for the supply of stationery; (4) for School Gardens; (5) for manual instruction. This plan would appear to be cumbersome and unsatisfactory. It is suggested that in future careful estimates should be made of conducting each school in a way that would yield results satisfactory to the Education Department and that block grants be included in the annual Education Budget to be presented to the Combined Court.

CLASSIFICATION OF SCHOOLS.

64. In the preparation of the Budget the estimated average attendance should be taken as the basis of computation, but, in order to encourage efforts in the direction of increased efficiency, some margin should be allowed to enable Managers and Schools to benefit financially as the result of superior work. For this purpose every school would be classified by the Commissioner, acting on the advice of the Inspectorate, under three heads (a) those where really excellent work was accomplished, (b) those where the work might legitimately be described as good, and (c) those which were satisfactory.

"EXCELLENT."

In coming to a decision as to the category in which a particular school should be placed the Inspector should have regard to the general quality and effectiveness, not only of the teaching given, the way in which all the conditions laid down in the Code had been fulfilled, the nature and extent of the agricultural or manual instruction, but to the general atmosphere of the school from a broader educational point of view, especially as regards cleanliness and good conduct, and the efforts that had been made to encourage moral qualities, such as truthfulness, thrift and the right kind of *esprit de corps*. No school which failed to provoke unhesitating enthusiasm, where the academic work was not of a really high standard or where the moral training in its widest sense was not particularly striking would be recommended for the "excellent" grant.

"GOOD."

A school might qualify for a "good" grant where obviously successful efforts had been made to train the children in the moral virtues but where the academic work was, here and there, open to adverse criticism, where marked excellence in one or two directions distinguished the school from the general mass, and where after carefully balancing the weak and the good features of the school, the Inspector was able to report that the net result justified a grant in excess of the normal grant.

"SATISFACTORY."

A "satisfactory" school would represent the normal standard of attainments and accomplishments.

It is of course understood that any school which did not reach the minimum in respect of academic work, and did not satisfy all the conditions of the Code, particularly as regards sanitation, would not in any circumstances be eligible for a grant.

It will not have escaped observation that such a classification of schools will have some effect upon the scale of salaries for Teachers. It will enable Managers to reward those Teachers, who have shown special diligence and attention to duty, and those who have shown that they possess exceptional skill in their profession or, alternatively, to make provision for a better and more generous supply of books or other desirable apparatus for the benefit of the children.

It is of course recognised that a differentiation of this kind between one school and another may place the Head Teacher at the mercy of the verdict of a single Inspector. It is therefore suggested that in each case where a school is recommended for the "excellent" or the "good" grant the estimate of the Inspector should be confirmed by another officer of the Department, or, preferably, by an inspection conducted by the Commissioner himself and that a similar confirmation be required before any school previously in receipt of one of these higher grants is reduced to a lower plane.

No grants should in future be paid to Managers for the purpose of building new schools except possibly in the case of schools in very remote and inaccessible

places (Art. 80) and all grants paid to Managers in respect of premises should be limited to "tenants' repairs" and not to repairs of the fabric which are, in accordance with the custom of the Colony, discharged by landlords.

(5)—EXAMINATIONS.

65. The thralldom of examinations under which Secondary Schools labour has already been commented upon in the hope that some speedy reform will be made in all directions and especially as regards the conditions under which the Guiana Scholarship is in future to be awarded. Similar reform is (in less degree perhaps) necessary in the Primary system.

In the case of both the Blair and Mitchell Scholarships the test applied is that of the Cambridge Preliminary Examination, the effect of which is to disturb the natural development of the Primary School, and to encourage Head Masters of teach Latin and French to children who may become candidates for the scholarship.

The School-Leaving Certificate may have its uses in encouraging boys and girls to stay at school longer than they otherwise would, and its continuance may be justified if no central or trade schools are established. But the kind of examination that would best suit the needs of the Primary School would be one taken by all scholars at 12 years and equivalent in scope to a Standard V. test. On the results of such an examination the elections to the Blair and Mitchell Scholarships and the twelve Government Scholarships might be made, together with the selection of pupils for the Technical School. An examination carefully and wisely conducted would have the advantage of supplementing the ordinary work of inspection and of maintaining an even standard of work in English and Arithmetic as between school and school.

BOARD OF EXAMINERS.

66. But in order to carry out this and other examinations there must be adequate and competent machinery.

The Commissioner as Head of the Education Department should undertake full responsibility for the scope, form and reliability of all examinations and to assist him he should form a panel of examiners, whose Question papers and assessments should be scrutinised by him and who should be under his complete control. For the purpose of carrying out all such examinations the Commissioner should be fully empowered to utilise the services of any master or mistress employed at any school whether Technical, Secondary or Primary in receipt of grants from the Treasury.

AN INTERCOLONIAL EXAMINATION BOARD.

67. Allusion may here be made to another point put forward by the British Guiana Teachers' Association. Their recommendation that every effort should be made to give effect to the Resolution of the Trinidad Conference, 1921, that an Inter-colonial Board of Examiners be instituted is fully endorsed especially for the purpose of dealing with the issue of Teachers' certificates. Such a scheme would serve a useful purpose by preserving a high standard and avoiding in the Higher Examinations any parochialism which might subconsciously creep in. On such an Inter-colonial Board the Commissioner would presumably have a seat together with one or more other representatives.

THE EDUCATION DEPARTMENT AND THE MANAGERS.

68. The relations between the Education Department and the Managers require to be very clearly defined and regularised. All appointments of Teachers, Head Teachers, Assistants and Pupil Teachers after they have been made by the Managers must be approved and confirmed by the Commissioner who shall not, however, refuse approval and confirmation except on educational grounds. It is also essential that Managers shall carry out any directions issued to them by the Commissioner which are in conformity with the Code or the Regulations for Secondary or Technical Schools or any cir-

cular or instruction legally enacted. It should also be recognised that failure on the part of the Managers to carry out such directions may involve a deduction from the annual grant or even the elimination of the school from the Annual Grant List. Under no circumstances will the Commissioner of Education interfere with the religious instruction which is given at a denominational school, or with any religious exercise, provided that such religious instruction is given during the time specified on the official time-table which has been approved by an authorised officer of the Education Department.

On questions only involving details of school management the Manager of each individual school should be easily accessible to the Commissioner and *vice versa*. Questions, however, involving large issues of policy should be referred to the Commissioner through the medium of the Governing Body of each denomination. It would greatly promote harmony and would tend to the avoidance of misunderstanding if an annual conference between the Commissioner and each Governing Body could be arranged. The exchange of views and the discussion of problems between the education authority and the representatives of the Diocese, Synod or other bodies representative of varying denominations has been tried in various parts of England with great benefit and success. The machinery for such conferences already exists in British Guiana and it is sincerely hoped that full use will be made of it.

(7)—HIGHER EDUCATION.

69. In a similar way it is hoped that no effort on the part of the Education Department will be spared to bring those who are responsible for any form of Higher Education, including those who are actually employed in teaching, into close touch with those who are actively engaged in directing industry and agriculture. The value of such an interchange is incalculable. On the one hand those who teach find that by such conferences their work is prevented by the criticisms of practical men of business from becoming too academic and detached; on the other hand it has been found by experience that employers of labour, even of unskilled labour, can be induced to appreciate more fully the work that is going on in the schools, the efforts that are being made to assist commerce and industry by the kind of education that is being given to recruits, and that a closer bond of sympathy and mutual understanding is ultimately established.

As far as the members of the teaching profession itself are concerned the need for a constant exchange of views is absolutely essential for many reasons. The solidarity of the profession is emphasised, the overlapping of curricula is avoided, an interchange of teachers is made possible, and reforms in detail can be outlined and put into practice by a very simple process and without arousing the susceptibilities of individual schools.

(8)—COMPULSARY EDUCATION.

70. Some divergence of opinion on this point was evident amongst the witnesses who appeared before the Commission. On the whole the balance of opinion was in favour of retaining the present law, that is to say of keeping the children compulsory at school in urban areas until they were 14, and in rural areas until they were 12 years of age. There was, however, a considerable minority who dissented from that view on the grounds that in both town and country there was a large demand for light labour, that this form of work served as a useful introduction to industry and that there were very many boys and girls of 12 who would never develop satisfactorily under the existing form of Primary Education. The latter point was heavily pressed and there can be no doubt that relatively less progress is made at the top end of the schools than elsewhere and that the complete absence of any attempt to teach children through their hands and by other devices than the ordinary academic methods accounts for this unsatisfactory state of things.

The remedy for that not inconsiderable class of children who do not respond or respond indifferently to the present methods of instruction appears to lie not in allowing them to leave school at a very immature age but in changing the nature of the training by the introduction of manual instruction, which may arouse the interests and activities of those children to whom the ordinary processes of education fail to make an appeal. The raising of the age to 14 may, from the point of view of policy, have been premature, and the schools may find it difficult to cater for the needs of many of the older scholars, but to reduce the age in either town or country cannot be regarded with any degree of satisfaction.

The worst solution of all is to ignore the law. Nevertheless this is precisely what has taken place, and is taking place. Whether this is due to weakness on the part of the Executive or to a general tacit admission that compulsory attendance cannot as is probably the case be enforced, the fact remains that the percentage of average attendance for last year, 1923, is officially returned at the astounding figure of 64. In any case it is incumbent upon the Government, either to amend the law governing attendance at school, if the present law is unworkable, or, alternatively, to insist upon the existing law being carried into effect. It is quite obvious that no Government can allow the law of the Colony to be openly disregarded and still retain either its own respect or that of the community at large.

(9)—HALF-TIME.

71. Certain members of the Commission put in a strong plea for a half-time system as an alternative to compulsory education. Whether they meant by this that children above a certain age should attend school in the mornings and be allowed to work in the afternoons, or that they should attend school one whole day and work in the sugar plantations the whole of the following day, was not very clear. But the points upon which they insisted, besides the general unsuitability of the subjects at present taught in the schools, were (1) that certain operations in the cultivation of the canes (such as manuring and weeding) being light occupations were eminently suitable for young children, (2) that intimate knowledge of the methods employed in growing sugar under the direction of overseers was the best introduction that could be given to the kind of work in which they would subsequently be employed, (3) that the wages, which they would there earn, would alleviate the financial distress from which parents not infrequently suffer, and (4) that especially amongst East Indians the family and not the individual was the economic unit—that is to say that it is the custom of this part of the community to encourage children from a very early age to contribute to the family exchequer—a habit which assumes a rather different aspect in the eyes of Western civilization.

It is very difficult for one who has known intimately the meaning of the half-time system in Lancashire to approach this proposal with a detached and unbiassed mind. Nevertheless one very important difference between half-time in British Guiana and half-time in Lancashire must be admitted. In the latter case the children worked in mills under physical conditions, which were wholly inimical to health and development, and their work was associated with machinery. In the former the work is in the open plantations; it is not exhausting and the children work in groups—"creole gangs" as they are known—and can associate with each other as they work. Short rests and intervals of childish play do not greatly impede the work as a whole; there is no necessity for any intense concentration of mind as was the case in the Lancashire mills where any withdrawal of attention involved the loss of a finger or the stopping of machinery. Notwithstanding the advantages of the sugar plantation or the rice field over the cotton mill, it is difficult to believe that much would be gained from any point of view by withdrawing the children from school at 10 and allowing them to work half-time from 10 to 12 years of age. It is surely early enough for children to begin to face the realities of life at 12

and to begin to play their part in the financial responsibilities of family life. In the case of East Indians, it must be remembered, many centuries of tradition approve the custom and in the cultivation of their own plots of land even younger children are to be found working side by side with their parents before or after school hours. The whole question is worthy of further consideration in the light of more intimate knowledge. But this warning may well be given—that it is an easy matter to introduce a half-time system but an exceedingly difficult matter to eradicate it if and when the occasion should arise, and further that it is by no means an easy matter to organise and control a school where the practice of half-time attendance is in vogue.

(10)—THE EAST INDIAN POPULATION.

72. An interesting problem arises here. There are roughly 10,500 East Indian children taught in the schools. The majority of the East Indian community came to the Colony under the Immigration Laws which have now been abrogated by the Government of India. The East Indian Association, which represented Hindus and Moslems, brought to the notice of the Commission two matters of importance to which reference is necessary. These concerned (1) sex and (2) language.

The Sex Difficulty

Strong exception was taken on the grounds of national tradition, which had almost the sanction of religion, to girls who had reached or were approaching the age of puberty being taught by men. This would appear to be corroborated by the figures in the attendance registers, where it is observed that children above ten years of age seldom attend school or attend with great irregularity and evident reluctance. The representatives urged that the sexes should be taught separately from a fairly early age and that adolescent girls—and adolescence in this oriental people is very rapid—should be taught by women preferably by Indian women. The theoretical plea for some concession in this direction to meet national susceptibilities would have been overwhelming, if the evidence of the witnesses had not disclosed the fact that nearly all East Indian girls voluntarily undertook work in creole gangs which were directed and superintended by male overseers. Despite this anomalous attitude of the East Indians, national traditions have some claim for recognition and it is recommended that, where the numbers make it possible, schools should be divided on the lines of sex, and that, where this cannot be done, a mistress should be detailed to teach the older girls.

Language.

As regards language the Association adopted the attitude of nationalism. They pointed out that the children of East Indians, who came to British Guiana under the late Immigration Laws, by mingling with other nationalities lost or were in danger of losing their national language and acquired a patois which was neither English nor Indian. This was to be deplored for many reasons but especially on grounds of patriotism and the Association accordingly pressed for instruction in Hindi or Urdu in the schools; and they were prepared to agree that this instruction might be given out of school by qualified teachers, provided that their services were recognised, and paid for, by a grant from the Government.

The solution of the language difficulty is, however, likely to be solved in the near future. Under the new arrangements with the Government of India which are, I am told, awaiting confirmation a stipulation is included under which pundits who will teach Hindi or Urdu will accompany future immigrations.

(11)—RIVER-SIDE AND ART. 80—SCHOOLS.

73. Both these types of schools are *sui generis*, and beyond the range of my experience. The former represent the river-side dwellers, whose life is amphibious and many of whose children come and go to school in canoes; the majority of this

people are bovianders and Aboriginal Indians. Art. 80—Schools similarly are composed of Aborigines and are in very remote and inaccessible parts of the Colony, and are organised and worked by missionary societies. To these the Government makes a grant in recognition of the pioneer work—a grant which would appear from every point of view to be thoroughly justifiable and wise. As to the type of education which should be attempted it is difficult to do more than make negative recommendations. Anything like an attempt to teach on traditional lines is to be deprecated. The course to be adopted would appear to be entirely different. Health and sanitation, here as elsewhere, are the two main objectives in secular training; then should follow craftsmanship on lines suggested by the needs of the community; then (in the case of the river schools) all the devices of river craft, the management, possibly the construction and repairing, of the canoe together with sound and direct moral instruction. When all this has been done a start might be made with Reading and Writing and calculations in their very simplest form. Compulsory education is of course out of the question. For the Psychologist and the student of educational science these types of schools will provide wonderful opportunities for studying the bases of education under very exceptional conditions.

(12)—BOOKS.

74. The poverty of the equipment in the Primary Schools has already been referred to and in no respect is there greater need of improvement than in the supply of suitable books for the children, especially the older children, to read. In all directions reform is most desirable. At the present time the "readers" in use are those which were in common use in England thirty or forty or more years ago and, though many of them are not without merit, the subject matter strikes me as being singularly alien in thought and atmosphere to the needs of the children in the Colony. The time-honoured stories of King Alfred have no doubt their own place in an English or even an Imperial scheme, but there are others, equally romantic and much more authenticated, which might be substituted for them. Similarly for small children graphic accounts of Napoleon and Splügen seem a trifle unreal for tropical schools. Much, too, is inappropriate in the text-books of Arithmetic. Money sums are apparently in terms of pounds, shillings, and pence, notwithstanding the fact that the currency of the market-place and the shop is in dollars and bits and cents. The inference to be drawn is that a supply of books suitable to the special needs of British Guiana, and more or less common to the West Indies, is much to be desired. Books of general interest could without much difficulty be compiled out of the ample store of local material, especially on the inexhaustible subject of Nature and natural phenomena. A text-book on Geography, dealing with a regional survey of the West Indies and South America, would be more useful and attractive than the old-fashioned political geographies, whilst a History dealing with the early romance of British subjects in the Indies and finishing with some account of the growth, development and unity of the Empire would be preferable to one dealing with early English History and such unattractive and relatively unimportant details as the Wars of the Roses. There must be in British Guiana and the West Indies men and women, who are fully qualified to produce books of the types which have been suggested, and the Government might well consider the advisability of commissioning some of them to attempt to satisfy local needs and at the same time to provide in broad outline books in which the unity of the Empire, its common interests and its common history, were emphasised.

75. In so short a time and with so limited an acquaintance with the schools it has been impossible to do more than survey the general principles that govern the education of the Colony and the way in which these principles are carried into effect. The results of such investigations as I have been able to make are, it must be candidly confessed, entirely unfavourable. It is difficult to believe that any other Colony is in a more backward and unsatisfactory condition, and the doubts which His Excellency expressed as to the efficiency of education would appear to be fully

justified. The importance and practical value of a sound system of public education do not appear to have been fully realised, nor has it been sufficiently recognised that the progress of this Colony, no less than that of every other State in the world, depends, primarily and ultimately, upon the qualities of its industrial manhood—their capacity to use to the full the gifts with which Nature has endowed the land, their skill in the use of tools and machinery, their ability to adapt their minds to enterprise, their power to exercise habits of thrift and perseverance. And it is precisely in failing to provide these vital forces that the education of the Colony is deficient and it is precisely here that the first step towards reform must be taken—a reform in aim and outlook and in the conception of educational values.

And next to this comes reform in execution—in the carrying out of reformed ideas. Good raw material in the shape of boys and girls, young men and young women, are here in plenty, the intentions and wisdom of the Government may be of the highest and the best, but, if the old slipshod habits of the Executive continue to live and thrive, the last state will be no better than the first. The plain fact is that the present machinery is outworn and fit only for the scrap-heap. An occasion now presents itself to re-shape and reconstruct the engine and then to drive it fearlessly and resolutely upon its way. The occasion will, it is hoped, produce the man, endowed with vigour and understanding, who will see to it that British Guiana does not lag far behind in the wake of other British Colonies.

E. WYNN-WILLIAMS,
His Majesty's Inspector of Schools.

7th January, 1925.

APPENDIX.

It is recommended that the undermentioned reforms and improvements be undertaken without delay :—

A.—POLICY.

(1) That conditions affecting the health of children and the sanitation of schools be rigorously enforced, and that schools of all grades be medically inspected as a condition of receiving grants.

(2) That the syllabuses of all schools be reconsidered with the object of making the instruction more suitable in character and more in accord with the needs of the Colony. That manual instruction and hygiene be included in the curriculum of all schools whatever their grade.

(3) That a Technical School be provided in Georgetown and that such a School be properly housed, staffed and equipped. That special provision be made for the scientific training of boys and girls in agriculture, building construction, elementary engineering, commerce and domestic economy.

(4) That a Training College for Teachers be attached and form part of the Technical School.

(5) That a Model School in Georgetown be provided for demonstration purposes in connexion with the Training College.

(6) That two Central or Trade Schools be established in Georgetown for certain children over 12 years of age who are unable to benefit from the kind of education that is given in Primary Schools.

(7) That two New Schools at Buxton and Friendship be built to take the places of the five existing Denominational Schools.

B.—ADMINISTRATION.

(1) That the general powers of the Executive be greatly strengthened.

(2) That the Commissioner of Education be made the responsible officer for all forms of education in the Colony.

(3) That a Consultative Council of seven members, nominated by the Governor be established and that it be their duty to assist the Commissioner with their advice on certain specified matters.

(4) That the Inspectorate consist of three men, one to be resident in each of the three Counties, and one woman, to be resident in Demerara.

APPENDIX E.

EDUCATION COMMISSION.

**Correspondence Relating to the Establishment of a
Medical College at Jamaica.**

APPENDIX E.

CORRESPONDENCE RELATING TO THE ESTABLISHMENT OF A MEDICAL COLLEGE AT JAMAICA.

(1) *Extract of despatch from Secretary of State dated 26th September, 1924, together with minute thereon by the Surgeon General, forwarded to the Chairman, Education Commission, by the Colonial Secretary:—*

Extract from Despatch from Secretary of State for the Colonies.

SIR,

3. The Colonial Advisory Medical and Sanitary Committee were inclined to view with favour the suggestion for the establishment of a West Indian Medical College, e.g., in Jamaica. It would be for consideration whether an Institution of the kind should provide a short Medical Course, which should be completed in the United Kingdom, or a full course, beginning and ending in the Colony. It was recalled that the Ceylon Medical College gives a complete course and grants a diploma which is recognised by the British Medical Association. The Committee would welcome the establishment of an Institution on similar lines in the West Indies, if practicable, and I should be glad to receive your Government's views on the proposal.

I suggest that the matter might be fully discussed at the next Conference. It will be important to frame an estimate of the probable number of students if such an institution were established.

I have, etc.,

(for the Secretary of State)

(Signed) ARNOLD.

Copy of a minute by the Surgeon General—dated 1st December, 1924.

HONOURABLE COLONIAL SECRETARY,

I consider that such a school of medicine as contemplated in paragraph 3 of the despatch would be a distinct advance and would benefit the West Indies, British Guiana and British Honduras generally.

2. Jamaica would probably be the best centre for its establishment. I am in favour of a school providing the full course as in Ceylon, though the question of providing accommodation with properly equipped laboratories and lecture rooms is a big one entailing heavy expenditure. There is further the question of obtaining a properly qualified lecturing staff—full and part time. At present I am doubtful if Jamaica can furnish this staff, though there is no reason why such could not be provided for, if the school could justify its existence.

3. In Ceylon, with its high standard of secondary education and a population of over 4½ millions, the Medical College founded in 1870 has been a thorough success and the cost to the Government is proportionally insignificant when compared with the advantages secured to the Colony.

4. The course of study provided in Ceylon is considerably cheaper than in the United Kingdom and the Diploma, L.M.S., (Licenciate of Medicine and Surgery) is recognised for registration purposes by the General Medical Council of the United Kingdom, and, moreover, other concessions are given by various English, Scotch, and Irish examining bodies as regard the recognition, for examination purposes, of various courses of lectures and practical classes conducted in Ceylon.

5. Further, a Licenciate of Ceylon (L.M.S.) is granted exemption from the First Professional of the London Conjoint Board, M.R.C.S., L.R.C.P., and from th

First and Second Professionals of the Scotch and Irish Conjoint Boards, so that the locally qualified candidate may, after qualifying proceed to the United Kingdom and obtain British qualifications in about two years instead of the minimum prescribed period of five.

6. As regards the particular case of British Guiana, this must be judged on the basis of population and secondary education, the latter especially. And as things stand secondary education is distinctly backward and it is doubtful whether, for some years to come, any material number of candidates would be forthcoming.

7. My own opinion is that rather than offer a subsidy to Jamaica (unless the amount is to be small) it would be better to develop secondary education and provide in British Guiana the mechanism for obtaining exemption from a Preliminary Scientific portion of British Medical Degrees and Diplomas.

8. In the United Kingdom the General Medical Council recognises for this purpose the lectures and examinations conducted at various Public Schools such as Epsom, Tunbridge, Dulwich, etc.

9. The conditions for obtaining this concession from the General Medical Council are the providing of properly equipped laboratories and teaching staff for the conduction of lectures and practical classes in Chemistry, Physics and Biology.

10. There is no reason why Queen's College should not obtain this concession so that students who have passed the Preliminary Scientific examination in Medicine here would be exempted from this portion when taking this British qualifications and would be able to qualify for British degrees and diplomas in four instead of five years. There are, moreover, with the proper equipment of a scientific side at Queen's College, other advantages, such as the training of students for the various British Science degrees such as the B.Sc. (Bachelor of Science).

11. On the whole, therefore, and taking everything into consideration, I am inclined to favour the establishment in British Guiana of facilities for obtaining locally the Preliminary Scientific training and qualification for Medical Degrees and Diplomas, and I intend to raise this point with the Education Commission at present sitting. If such small units as English and Scotch Public Schools can provide facilities for the Preliminary Scientific courses of Medicine and obtain the recognition of the General Medical Council, there is no reason why this Colony should not be able to do likewise.

(Signed) P. JAMES KELLY.

Reply by the Chairman, Education Commission, to Colonial Secretary, dated 2nd January, 1925.

SIR,

I have the honour to acknowledge the receipt of Mr. Webber's letter No. 6200/20 of the 31st ultimo, transmitting extract from a despatch of the Secretary of State on the subject therein mentioned, together with the Surgeon General's minute thereon.

2. I observe that the Surgeon General will himself bring the matter before the Education Commission, and I await with interest that desirable step. Meanwhile the Documents transmitted will be circulated to the Commissioners.

3. The next meeting of the Commission will be in the latter part of the present month. Of its date the Surgeon General shall receive timely notice.

(Sgd.) CHARLES MAJOR.

3 DEC 1927



U.S.O. No. 1041/26.

2

British Guiana.

REPORT
OF THE
COMMISSIONER OF EDUCATION,
FOR THE YEAR
1925.

Printed by the Authority of His Excellency the Governor.

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GENERAL REPORT OF THE COMMISSIONER OF EDUCATION.

EDUCATION DEPARTMENT,

GEORGETOWN, BRITISH GUIANA,

19th February, 1926.

SIR,

I have the honour to forward the following report for the year 1925.

1. In general, the primary schools remain in the condition described in my report for 1924. They are understaffed (especially in respect of the quality of the teachers), they are very ill-equipped, and, in the majority of instances, they are dilapidated, and insanitary. The organisation, and methods in use throughout the whole system of primary education are seriously handicapped by these defects (especially the lack of qualified teachers, and suitable buildings), and the standard of efficiency which the Department has been forced to accept is therefore very low.

2. Wherever possible, the Department has brought strong pressure to bear upon the Managers in order to improve matters, and in some instances, the Managers have themselves taken action without waiting for the Department. The net results have not, however, appreciably affected the general situation, and what I wrote in February, 1925 is still true in every important respect. No reconstructive work of first-class importance is, in my opinion, possible until the new policy recommended in the Report of the Education Commission of 1924-1925 has been inaugurated.

3. The publication of that Report has been the chief event of educational interest during the year. It was well received by the Press, but with a few exceptions, the individuals and the organised bodies concerned with education have been singularly silent on the subject. This may be interpreted either as a favourable or an unfavourable omen, but I fear that the only conclusion which it is safe to draw is that there are very few people who take even a lukewarm interest in the subject. Whatever may be the cause of this apathy, it must be reckoned with by those who are to shape the future educational policy of the country. The small minority who are genuinely interested in education must become much more articulate, if the next few years are to see any substantial advance being made in educational matters in the Colony.

4. During the first part of the year, I was engaged mainly in the general work of the Education Commission, and in the preparation of its report. During the rest of the year, in addition to the normal work of the Department, I have given special attention to the following matters :—(a) the organisation of courses of instruction for teachers and pupil teachers ; (b) the organisation of courses in woodwork and domestic science, for boys and girls respectively ; and (c) improving the general efficiency of the schools by encouraging regular attendance and punctuality. With a few exceptions, these remedial measures are to be regarded as stop-gaps. They are in no sense put forward as substitutes for the corresponding parts of a comprehensive policy of reform.

5. The following is a list of the chief classes held for teachers and pupil teachers :—

Georgetown	...	...	English
			Mathematics
			Principles of Teaching
			Nature Study
			Physical Training.
			Hygiene.
			Drawing.
New Amsterdam	...	...	English.
			Mathematics.
			Principles of Teaching.

Suddie	...	...	English.
		...	Mathematics
		...	Principles of Teaching
Corentyne	...	..	English.
(Pupil Teachers only)		...	Mathematics.
		...	Nature Study.
		...	Hygiene.
		...	Drawing.
		...	History.

The importance of this part of the educational system cannot be exaggerated, as it is obvious that the standard of education and professional skill among teachers will deteriorate very rapidly, unless an adequate supply of recruits can be educated and trained. As I have indicated above, these arrangements will not provide a satisfactory substitute for a Training College, and I am not commending from that point of view the courses which we have held. They are the best which could be arranged with the available resources of staff, apparatus, and funds.

6. Certain points have emerged very clearly in connection with these classes. A large number of those who attended to receive instruction are quite unfit to be employed as teachers. Their general education is approximately that of a child in the Third or Fourth Standard. If similar courses are held in 1926, there will be a preliminary grading, with the object of discovering those whose further education is seriously handicapped by a lack of early training. This does not mean that they will be discharged from employment. I see no prospect of our being able to do without them, especially in the country districts, until the scale of salaries provides a living wage for all teachers who are fit to be employed as such. This is the only method known to me by which we can break away from the present system under which inefficient teachers produce succeeding generations whose standard of efficiency is even lower than their own. It will also be necessary to limit very rigidly the numbers admitted to each class, and it will have to be realised that admission to a teacher's course is a privilege, which, if not fully taken advantage of, will be forfeited.

7. With this in view, I have applied to all classes for teachers the principle that the students must pay an enrolment fee, which will be returned to those who complete the course to the satisfaction of the lecturers and of the Department. This has had very beneficial effects in ensuring punctuality and regularity, and an honest attempt on the part of most students to do the work of the class. Owing to the low salaries paid, I accepted the fee in instalments from some teachers, but I shall not do so again, as, in these instances, the proportion of fees forfeited for absence was too high.

8. Another fact in connection with the classes has been that they have not been sufficiently accessible to the teachers in out-of-the-way districts, although certain students travelled long distances every Saturday to attend the classes. For this reason, I have included correspondence courses in next year's programme, by which means I hope to improve the education of the teachers in rural districts, and to keep them more in touch with the work of other schools.*

9. The courses in woodwork for boys, and in domestic subjects for girls, have been held at the Lutheran Industrial School, and the Berbice High School for Girls respectively. The Lutheran School is a new institution, which was opened on 2nd March, 1925, by His Excellency Sir Graeme Thomson. It is a testimonial to the energy and enterprise of certain citizens of the United States of America (just as the Berbice High School for Girls is to the enterprise of citizens of the Dominion of Canada) a fact which may well arouse mixed emotions in the breasts of patriots. The first courses were held from May to July, and the second from September to December. The pupils from the primary schools who have attended these courses have shown themselves of average intelligence and activity, and quite capable of profiting by the instruction.

* Further details on the subject of classes for teachers will be found in Section 2.

given. The chief difficulty has been the irregularity of the attendance. These courses have also shown that, although there is at present little demand among the pupils (or their parents) for instruction in manual work, it will probably increase now that opportunities are being provided. The Lutheran School is satisfactorily equipped, but there have been some unavoidable deficiencies in the equipment of the Berbice High School for Girls (to whose normal work these classes are, of course, an addition), which are now being made good. At both institutions, attempts were made to run continuation classes for young people who had recently left the primary school. For the Lutheran School classes, a few pupils have been forthcoming, but the enrolment for the continuation classes at the Berbice High School for Girls has been negligible. Continuation schools, except under a system of compulsion, have been plants of very slow growth in all parts of the world, and the poor enrolments at New Amsterdam are not exceptional.

10. The general problem of school attendance presents its own difficulties, which have not yet been solved. With a system which is nominally one of compulsion, we reach only an average attendance of 65 per cent. In Trinidad, without any machinery of compulsion, practically the same figure is reached. But in this Colony the attendance officer saves many young children from being illegally sent to premature labour, especially in the "Creole gangs" of the plantations. The prevalence of this system of child labour is shown in the table in Appendix IX, which has been compiled from the reports of attendance officers in the various districts. There is reason to believe, that on some of the estates, only the children who were not likely to be of use for the purposes of labour have gone to school in the past. The age at which employment is permitted by the present law (the employment of children under nine years is prohibited entirely, and the employment of children under twelve years is prohibited during school hours), seems to me to be the minimum, and in future it will be one of the tasks of the Department to see that this minimum is observed throughout the Colony. Some progress towards this object has already been made.

11. In general, I have tried to improve the attendance at school by peaceful persuasion, rather than by the prosecution of parents or employers; hence, the institution of a system of attendance flags (for which the correct flag of British Guiana is used), the issue of posters, and the temporary employment of two additional attendance officers in Georgetown. A large number of managers have adopted my proposal that the schools should open at an earlier hour, and 8 or 8.30 a.m. has been substituted in many schools in place of the traditional 9 or 9.30 a.m., which seems to me quite unsuitable for a tropical country. The results of these measures have been satisfactory, although they have not in all respects realised my anticipations. The full effects will not, however, be seen till the end of the present school year (31st July, 1926).*

12. The staffing and organisation of the Education Department call for some remark. During the whole year, the Department has been without a permanent second in command, the Inspector of Schools, Mr. J. D. Lawrence, being on sick leave from 3rd December, 1924, till 17th July, 1925, when he retired after 21 years service in the Department. Mr. Lawrence was on leave when I assumed duty in 1924, but he left in the Department, in the schools, and in the Colony, a reputation for great insight into educational matters, combined with more than the usual share of Scots caution. On the only occasion on which we met, he gave me some most valuable advice, which showed a thorough knowledge of the educational conditions of the Colony.

The third post in the Department has also been vacant (being replaced by a temporary appointment at a lower salary), and the "Emergency" Inspectors who were formerly attached to the Department, were not employed after February, 1925; On the other hand, Mr. H. A. Mathews (who retired on pension on 31st May, 1924,) has been re-employed since 1st February, 1925. One result of this reduction of staff has been the saving of approximately \$1,600, but the corresponding disadvantages from the point of view of efficiency are equally obvious.

* Further details in connection with attendance will be found in Section 4.

13. The staff of clerks* allowed in the Department is four, one of whom is constantly employed on accounting duties, as the Commissioner controls votes amounting to over \$400,000. With such a small office staff, there is an obvious temptation to a Commissioner to employ the Inspectors on clerical duties, a practice which finds authority in the fact that two posts out of the three on the present Inspectorate include administrative duties—those of Secretary of the Education Board and of Educational District Officer. I have, however, tried to reduce the office work to be done by the Inspectors, as will be seen by the fact that while in 1924, the officers of the Department paid 185 visits to 132 schools, they paid 249 visits to 212 schools in 1925 (out of a total of 258).

14. Within the office, an effort has been made to inaugurate reliable records of uncertificated teachers, to bring up to date the records of certificated teachers, and to scrutinise more closely the reports of teachers' absences, and their applications for leave. The annual schedules of statistics were reduced from eight returns, of nine pages in all, to a single return of three pages. The Regulations have been improved in the matter of payment of fees for secondary instruction given in primary schools (a matter of great importance to many parents in the Colony). The purpose, and I hope the result, of all these changes has been to hold the balance even, between the taxpayers and the teachers, whose real or apparent interests are not always the same.

15. Another effort to make the Department more useful to the schools has been the establishment of a library. The nucleus, consisting of four hundred and ninety volumes, has been purchased out of the Fine Fund, with, I think, the approval of those who involuntarily contributed to that fund in the past. The main sections are those dealing with general educational theory and practice, and with the teaching of particular subjects, especially the arts and crafts, a branch of education in which the deficiencies of our present system are so woefully apparent. In the conduct of the library the Commissioner will have the assistance of a Committee, on which the School Managers and Teachers are represented, and two Head Teachers attend when the Library is open, to issue and receive the books.

16. I desire to thank the members of the staff of the Department who have helped me to carry out such changes as I have made. It is, I think, greatly to the credit of the Department that the permanent clerical staff still numbers only four in all, the figure at which it stood in 1914, when the work was much less, and that we have had the temporary assistance of only one clerical assistant, even during the busiest periods.

17. I wish also to thank the Principals of grant-aided secondary schools who supplied me with the information given in Appendix X, as well as information on a large number of other points, on which, I anticipate, will be based the future regulations governing State-aid to secondary schools.

18. A statement of the expenditure on primary education during 1925 will be found in Appendix XI. The total amounted to \$355,539 (£74,070.12. 6). By far the largest item is grants to primary schools, which amounted to \$316,534 (£65,944.11.8), of which \$285,099 (£59,395.4.2) was paid in teachers' salaries. The expenditure of these sums obviously places a heavy responsibility on the official concerned, whose prime duty is to ensure that it is applied to the greatest advantage of the children, and of the Colony as a whole. After a year's experience of the present system of denominational schools, I find that my first impressions are more than confirmed. Unrestricted competition among the denominations has led to this expenditure being spread over such a large number of schools that the efficiency of each is very much reduced, (especially from Standard IV upwards), and a drastic concentration of the school population is essential, before the expenditure on primary education can be applied to better advantage. Under the present system there are two, three, or four schools, where one would suffice, and would be much more efficient and economical than any of the existing ones.* These are all competing with

* The annual cost per child in a school of 120 pupils is approximately \$15; in a school of 200-pupils, it is \$12; in a school of 400 it is \$10; and in a school of 600 it is \$8.

one another for staff, with the result that the qualified teachers form a very small minority of the total number employed. Out of a teaching staff which numbers 1,329 in all, only 333 hold certificates of competency, and of these, only 89 have passed through a Training College for Teachers. Is it reasonable to expect a satisfactory standard of efficiency from such a staff?

19. Educational organisations are not, of course, comparable in all respects to private business undertakings, or even to public undertakings, such as post offices, but certain basic principles apply to the expenditure of all moneys, whether private or public, and I find it difficult to conceive that any individual or body undertaking to supply a local service of any kind, would establish five competing branches in Buxton, seven in New Amsterdam, and thirty-two in Georgetown, over which the limited number of skilled employees would be distributed among such a large number of unskilled ones, that the standard of efficiency was lowered throughout the organisation as a whole, and in every branch of its work. It is true that to do away with the present overlapping of schools, a large capital expenditure on buildings will be necessary. On the other hand, the present system of distributing the school population over a large number of small schools resembles a bottomless pit, into which public money to pay staff, and to maintain buildings, may be poured each year at an ever-increasing rate, without any guarantee of increased efficiency. Even if this "automatic" increase be avoided (by concentrating the school population), the total figure which the votes for education have already reached, demands that there should be in each county, an officer of the necessary knowledge, skill and experience, who, on behalf of the taxpayers, will supervise the expenditure of the money voted, and who, at the same time, will guide and direct the teachers by disseminating new ideas, and introducing modern methods.

I have the honour to be,

Sir,

Your obedient servant,

W. BAIN GRAY, Major,
Commissioner of Education.

The Honourable
THE COLONIAL SECRETARY.

2.

COURSES FOR TEACHERS AND PUPIL TEACHERS.

By Mr. A. A. Bannister, Acting Assistant Inspector of Schools.

1. *General.*—It appears from a comparison with previous reports that the year 1925 has seen a greater variety of courses for teachers, than any other period in the educational history of the colony. This, to some extent, compensates for the fact that no teachers were sent for training to Jamaica and Barbados. A new feature was the deposit money required from each student before admission to any course. This was refunded to those who attended regularly and punctually, and performed the work of the class to the satisfaction of the lecturer and the Department. All the lecturers reported that the students were attentive and keen, but several suggested that in future there should be careful selection, as a large number of those who attended courses had had no proper grounding in the subject being taught.

2. *Lectures and Demonstration lessons to Teachers in charge of preparatory and lower divisions.*—These were given by Miss L. R. Kennedy and Miss B. M. Jackson (in continuation of courses begun in 1924), and were carried on in Georgetown between January and April. Of the forty-four teachers who attended, forty-two passed

the final examination. Similar lectures were given in Suddie from April 4th to 21st, where twenty-four teachers attended, of whom seventeen passed the examination.

3. *Lectures to Teachers in Georgetown and District.*—These were held at Werk-en-Rust Wesleyan School on Saturday mornings from February 14th to July 25th, and there was an enrolment of one hundred and thirty-two, of whom sixty-four qualified for the return of their enrolment fee.

The following were the lecturers and the various subjects:—

Mrs. H. E. Anderson	...	Principles of Teaching.
Mr. A. A. Thorne	...	English, Geography, and History.
Mr. E. O. Pilgrim	...	Mathematics.
(Mr. J. C. La T. Potter acted during Mr. Pilgrim's absence from the colony).		

Mr. Thorne reports that the lectures were well attended; the number present usually exceeding 100. Owing to the differences in attainment and ability among the students, he thinks that in future there should be at least two different classes. All the students, however, made creditable efforts to improve, and deserve further consideration and assistance in this direction.

Mrs. Anderson reports that the class appeared thoroughly interested and receptive, but there was cause for disappointment in the fact that very few students availed themselves of the opportunity to ask questions or to discuss any points introduced in the lectures.

4. *Lectures to Teachers in New Amsterdam and District.*—These were held at the Berbice High School for Boys, on Saturday mornings from May 2nd to November 21st. The lecturers were:—

The Reverend N. M. Rattee	...	Principles of Teaching.
" J. A. Scrimgeour	...	Mathematics.
" P. H. Nicoll	...	English.

There was an enrolment of eighty-eight, and thirty-two students qualified for the return of their fee. The Reverend P. H. Nicoll reports that in English, the class was attentive throughout, and distinct progress was made in all the branches, especially in composition, where at first great ignorance was displayed. The faults noticed, especially among the juniors, were in sequence of tenses, idiomatic phraseology, and in the meanings of words. Many also showed a great lack of general information. The lecturer in Mathematics (the Reverend J. A. Scrimgeour) reports that in this subject the difficulties arising from differences in attainment and ability were very acute. Many had previously done no geometry at all, and very little algebra. But the attendance and other features showed that there is a real desire among the teachers to improve themselves.

5. *Lectures to teachers in Suddie.*—These were held at St. John's Anglican School from August 10th to 26th, and twenty-two teachers attended, of whom twenty-one qualified for the return of their fee. Mr. E. M. Storey lectured on English and on the Principles of Teaching, and Mr. B. C. G. Potter on Mathematics and English.

The lecturers report that there was a marked eagerness to learn. The programme of lectures previously drawn up was carried out, except in English Grammar and Composition, in which about three more lectures were needed. Many students were, however, too poorly grounded to profit by the lectures, and there was no time for effective revision and testing of results.

6. *Lectures on Nature Study.*—These were held at Queen's College, Georgetown, from April 18th to July 4th, by the Reverend A. M. Hale. Of the twenty-six teachers who attended, twenty-three gained certificates. The lecturer reports that the average attendance was twenty-one. Notes were taken by the students and returned for correction. It was encouraging to find how much of the subject matter had been absorbed and apparently understood. The teachers were also set practical work, and the specimens submitted showed excellent results. It was quite plain that they had learned to look upon Nature Study from a totally different point of view, and had found the newer methods highly interesting. The lecturer thinks that in future

there should be two courses, one dealing with plant life and the other with animal life. It was impossible to cover the ground adequately in both branches of the subject in one course.

7. *Lectures on Hygiene.*—These were given by Dr. J. F. C. Haslam at Queen's College, from August 5th to 15th. There were thirty-nine students enrolled, of whom thirty-two did satisfactory work, and were awarded certificates.

8. *Physical Training Class.*—This class (the first of its kind) was conducted by Mr. F. R. Skeeles, Secretary of the local branch of the Young Men's Christian Association, from August 5th to 21st at Queen's College. Of the thirty-nine teachers who attended, thirty-three gained certificates.

Mr. Skeeles reports that, bearing in mind the fact that a very small proportion of the teachers had had any previous training, the course can be considered a successful one. But it is not possible to judge how the instruction will be given in the schools, and really satisfactory results can be brought about only by instituting some means of guidance and supervision, whilst the members of the class are actually engaged in giving physical training instruction to their pupils.

9. *Drawing Class.*—This was conducted by Miss B. M. Jackson, at St. Andrew's School from September 19th to December 5th. There were thirty-three teachers enrolled, of whom twenty-two qualified at the examination held at the end of the course.

Miss Jackson reports that progress was slow, owing to the fact that the course was the first of its kind, and the majority of the teachers had not done any model drawing before. All, however, made good efforts, particularly the senior masters.

10. *Lectures to Pupil Teachers in Georgetown.*—These were conducted by the Reverend Father Weld and the Reverend Father Adamson of St. Stanislaus' College, assisted by the following Head Teachers: Mr. R. McD. Jones, Mr. R. R. Persico, and Mr. H. S. Jackson. The classes met on Saturday mornings at Brickdam Roman Catholic School, and on Wednesday afternoons at the Smith Memorial Church Congregational School from February 7th to April 4th. Father Weld lectured on English, and Father Adamson on Mathematics. One hundred and sixty pupil teachers enrolled, and the lecturers report that the attendance was satisfactory. Progress could not be judged owing to the impossibility of undertaking any correction of work, but from the keenness shown, it would seem that the pupil teachers had profited by the lectures. The lecturers think that in future the classes should be smaller, as pupil teachers do not gain full advantage from the lecture system, and need individual or class teaching.

11. *Classes for Pupil Teachers on the Corentyne Coast.*—The teachers on the Corentyne Coast deserve credit for starting Saturday classes for their own pupil teachers, which have been conducted without help from the Department, except the provision of some apparatus. Their example might well be followed in other districts. The subjects taught have been: English, Mathematics, History, Drawing, Nature Study, and Hygiene.

3.

NOTES ON INSPECTIONS.

By Mr. H. V. Taitt, Assistant Inspector of Schools.

Organisation.—One of the main problems of organisation is the classification of pupils. Whatever basis of classification is adopted, there will always be a number of pupils who do not fit into the proposed scheme. It is this difficulty, apparently, that leads a few teachers to multiply divisions unnecessarily. The alternative remedies which readily suggest themselves are, either to form a special class for backward pupils, or to arrange the time-table so that each child who is backward in any particular subject can be suitably placed. At present, four well-defined divisions exist, namely, Upper, Lower, Middle, and Preparatory, each of which (Preparatory excepted) is divided into two standards. Any further sub-division complicates organisation. I do not refer, of course, to the division of a class on account of

numbers, but rather to sub-divisions into which children of varying degrees of intellect are intended to fit. Obviously, if this basis of classification were universally adopted, there would be no end to the number of classes.

There is, too, the tendency to create classes for children who, in respect of intellectual attainments, are not to be found in the school. In other words, some teachers have not grasped the difference between a nominal sixth standard and a real sixth standard. Many of the pupils met with in Standard VI. of some schools, are barely fit for Standard IV. But, apparently, because the term Standard VI. does exist, pupils must be found to be put into it. The practice of premature promotion is to be deprecated. Whether these promotions are due to error of judgment or to the desire to please parents, the harm done to both pupils and parents alike remains as a monument of defective classification. On the other hand, the pupil of real ability must always be given a fair chance to progress, at a rate which will allow him to complete the whole curriculum by fourteen years, or to enter the secondary school before he is twelve years of age.

Discipline.—My remarks under this head apply in the main to the conditions observed while classes are at work. A greater degree of association between teachers and pupils, however, is desirable on the playground. In many schools this is done, and the games organised by the teacher exercise a healthy influence on the general tone of the school; but the practice is not general.

On the whole, few instances of lack of control of classes on the part of the teachers have been noted, but a certain feature of school discipline deserves correction, and that is the undue display of the rod and its indiscriminate use by young members of the staff. Much, too, of the harshness adopted towards pupils could be mitigated. It is in these respects that the conditions of school life could be ameliorated and rendered more attractive.

Instruction.—It is necessary, first of all, to draw attention to the lack of preparation of lessons on the part of most teachers. This feature of unpreparedness is too general to be ignored. It is sometimes painful to listen to haphazard and desultory questions put to the children, the source of which can be traced only to ill-informed and hazy ideas. To whatever extent the class might suffer intellectually, there can be no doubt that such a practice tends to weaken the moral tone of the class. On the other hand, due credit must be given to those teachers who not only take pains to prepare lessons, but display natural aptitude for presenting the subject matter of the lesson in as interesting a manner as possible.

Reading.—The practice of collective reading is still far too common. Monotony, indistinctness, and slipshod pronunciation, are marked features in some schools. An intelligent grasp of the subject matter, and fluency, need greater encouragement.

“Th” is frequently pronounced as “d” and consonantal endings are ignored. In some districts considerable difficulty is found in getting the correct pronunciation of words where “h” is aspirated and where it is silent. A marked improvement, however, is discernible in schools in these districts where the teachers correct such blunders, which, for the most part, do not rest on any physiological basis, but are merely the outcome of carelessness and indifference culminating in a habit.

The value of silent reading is apparently lost sight of in most schools. The chief aim of teaching reading is to foster a liking for reading after school days, and to encourage the appreciation of good literature. This point is overlooked, and too great an emphasis laid on mechanical reading.

Writing.—For all practical purposes the three desiderata in teaching writing, are legibility, symmetry, and rapidity. These elements combined help to prove efficient training in writing. It is seldom, however, that they are met with in conjunction. Two important factors assist in producing these results:

- (1) the proper posture to be assumed, and
- (2) the proper method of holding the pen.

In these respects most schools have been found wanting.

In the actual teaching of writing it has been observed that lines on slates have not been evenly ruled. Letters accordingly, vary in size and produce styles lack-

ing in symmetry. In this respect even some blackboard copies set by the teachers are defective. The practice of putting children to stand and write back to back is too prevalent. All writing, whether on slates or on paper, should be done at desks. Stumps of pencils are still frequently used. When pencils become too short for use they should be lengthened by holders. The projection of the pen or pencil beyond the knuckles is necessary if comfort and efficiency are to be combined. All schools do not teach writing from copy-books, but after careful reflection, the economic advantages in respect of time and labour to be gained by adopting this method must be admitted. Whatever method of teaching writing be adopted, it is desirable that the style of writing be uniform in each school. Indeed, uniformity in a district would be a decided advantage.

Arithmetic.—It is disappointing to record that whereas long mechanical examples are worked with a fair degree of accuracy, problems involving a modicum of reasoning are incorrectly done. The defect appears to be in the insufficiency of training devoted to exercises entailing thought.

The fact, too, that statements in problems stand to each other in certain logical sequence and must be expressed in correct English is occasionally lost sight of. In sums requiring two or three processes, it is important to be able to discern which process is to be done first. The work of a problem can be considerably complicated if this consideration is ignored. The inadvisability of always converting decimals into vulgar fractions requires emphasis.

English.—While it is desirable that a knowledge should be acquired of the rules on which a language is based, it is even more desirable that those rules be correctly applied. The divergence between knowledge of the formal side of English, that is Grammar, and of correct expression in continuous speech, that is Composition (oral and written), is generally too marked. Much of the time devoted to memorising rules might, with greater advantage, be employed in practising the children in expressing their ideas correctly.

Although a definite amount of time is allotted on the time-table to the teaching of English as a subject of the curriculum, yet it should not be forgotten that actually a much larger portion of the pupils' time is employed in consciously registering correct or incorrect forms of speech. A great deal of this registration occurs when other subjects are being taught. It is necessary, therefore, if any permanent benefit is to accrue from the teaching of English, that correct speech be adopted by teachers and scholars on all occasions, particularly when associated together in the schoolroom. There is no room for the existence of more than one kind of English. Whether speech be required for putting questions, telling stories, or praising or censuring children, it is essential that it be couched in the best and most wholesome form.

Grammar and Composition, as two aspects of English, usually play some part in the school curriculum, but there is a third aspect of English, namely, literature, which certainly requires greater emphasis than it receives at present. In respect of improving English, and supplying ideas, the benefits to be derived from reading good books are inestimable. It is in the supply of suitable books for elementary children to read that most schools are found wanting, and this lack must affect adversely the standard of English throughout the schools. Many Head Teachers are wisely endeavouring to improve matters by forming a school library.

Hygiene.—More attention requires to be given to personal hygiene and the practical part which it plays in school life. The object of including hygiene in the school curriculum is lost if lessons end in a mere knowledge of rules. There are a few schools in which the importance of hygiene is not lost sight of, but there is need of a general application, both in respect of personal hygiene and of the surroundings of the school.

SCHOOL ATTENDANCE.

1. The number of children attending the primary schools of the colony this year is greater than attended last year, but the percentage in average attendance has not increased. The problem is not only how to ensure that all children are on the roll of a school, but also how to ensure that those already enrolled attend regularly.

2. Apart from the activities of the school attendance officers (which are summarised in Appendix VIII.), the existing Code provides encouragement to regular attendance in the form of prizes and certificates. Every pupil who makes the maximum number of attendances in any year is awarded a prize, and every pupil who makes 400 attendances or over, but less than the maximum number, is awarded a certificate. This has proved an insufficient inducement. In 1925, of the 43,131 children on the rolls, only 116 received prizes and 778 received certificates. Although there are 256 schools receiving grants, pupils of only 36 schools received prizes. Other plans have therefore been adopted during the latter part of the year 1925, with a view to improving the attendance. Besides the issue of circulars to Managers and Head Teachers, letters have been sent to parents thanking those who sent their children regularly, or warning those who sent them irregularly to school, as the case may be. In addition, weekly visits are being paid by the school attendance officers to defaulting parents, and a large number of posters were issued with the following wording:—

TO PARENTS AND GUARDIANS.

DO YOUR CHILDREN

GO TO

SCHOOL EVERY DAY?

LAST YEAR ONLY 895 CHILDREN

OUT OF 40,563 ATTENDED REGULARLY.

THE STATE PROVIDES

FREE EDUCATION FOR ALL.

SEND YOUR CHILDREN TO SCHOOL

PUNCTUALLY

EVERY MORNING AND AFTERNOON.

3. During the period 19th October to 12th December, 1925, two extra compulsory attendance officers were employed in Georgetown. In the following table a comparison has been made between the attendance during this period and the corresponding period during 1924. An increase, (varying from 22 to 2), is shown in the percentage of attendance at every school except two.

Name of School.	Attendance Percentages.	
	For period 19.10.24. to 12.12.24.	For period 19.10.25. to 12.12.25.
Lodge, E. ...	45	57
Saffon Street, E. ...	61	76
Bedford, W. ...	42	58
Bourda, W. ...	72	70
Ursuline Convent ...	56	71
Werk-en-Rust, W. ...	65	77
Regent Street, R.C. ...	60	74
Charlestown Girls', R.C. ...	58	69
Brickdam, R.C. ...	56	64
Kingston, W. ...	73	84
Main Street Boys', R.C. ...	56	62
Main Street Girls', R.C.. ...	55	64
Albouystown, S. ...	63	71
Lodge, C. ...	65	77
Albert Town, E. ...	58	68
St. Thomas', S. ...	58	70
Freeburg, E. ...	69	81
Queenstown, R.C. ...	48	70
Queenstown, M. ...	52	68
Albert Town, C. ...	44	37
Kingston, E. ...	57	68
Christ Church, E. ...	58	71
Wortmanville, R.C. ...	61	70
Smith Church, C. ...	56	77
St. Andrew's, S. ...	62	70
St. George's, E. ...	55	57
St. Barnabas', E. ...	51	71
St. Stephen's, S. ...	70	84
St. Leonard's, E. ...	68	73
Bourda, R.C....	57	69
Charlestown, C. ...	59	75

4. A new feature which will certainly tend to improve the attendance is the presentation of flags to schools in specified areas. The Colony flag presented by the former Governor, Sir Graeme Thomson, K.C.B., to the school with the highest average attendance during the period April to July, 1925, was won by Good Hope Scots School with 83.4 per cent.

5. The following table shows all the school attendance flags won in respect of the same period :—

NAME OF DONOR.	DISTRICT.	SUCCESSFUL SCHOOL.	ATTENDANCE PERCENTAGE.
His Excellency Sir Graeme Thomson, K.C.B.	The Colony	Good Hope, S.	83'4
J. E. Strickland, Esquire, F.R....	Georgetown	Werk-en-Rust, W.	74
Dr. P. M. Earle	East Bank, Demerara	Mocha, W.	76
T. P. Jaundoo, Esquire	West Coast, Berbice	No. 9, E.	80
The following awards have been made for the period July to December, 1925 :—			
His Excellency Sir Graeme Thomson, K.C.B.	The Colony	Good Hope, S.	91'8
J. E. Strickland, Esquire, F.R....	Georgetown	Kingston, W.	80'86
E. M. Walcott, Esquire, F.R. ...	Demerara (excluding Georgetown)	Mocha, W.	83
Dr. P. M. Earle	East Bank, Demerara	Agricola, W.	83
J. A. Luckhoo, Esquire, K.C., F.R.	South East, Essequibo	Great Trootie Island	84'75
T. P. Jaundoo, Esquire	West Coast, Berbice	Hopetown, C.	81'95
Plaisance & Sparendam Village Councils	Plaisance and Sparendam	Plaisance, R.C.	76'67

5.

EXAMINATIONS.

A.—GOVERNMENT PRIMARY SCHOLARSHIPS.

For the twelve scholarships available, one hundred and forty-one candidates competed. The examination was held on the 6th and 7th August, at Queen's College, Georgetown, for the County of Demerara, at All Saints' Scots School, New Amsterdam, for the County of Berbice, and at St. John's Anglican School, Suddie, for the County of Essequibo.

All the five scholarships available for candidates resident in the County of Demerara were won; of the four available for Berbice County only two were won; of the three allotted to the County of Essequibo, none could be awarded, no candidate from that county having reached the prescribed standard (60%).

The five lapsing scholarships were eventually distributed among the three boys and two girls in Demerara who stood next in order of merit after the successful candidates. In consequence of a most regrettable accident, in which the candidate who took first place lost his life, another lapsing scholarship was awarded.

In this examination, 23 candidates in all, out of 141, succeeded in reaching scholarship standard.

B.—PRIMARY SCHOOL LEAVING CERTIFICATE AND PUPIL TEACHER'S EXAMINATION.

The above examination was held at 17 centres throughout the Colony. There were 426 entrants for the Primary School Leaving Certificate, of whom 132 passed, *i.e.*, 30%, as against 7% last year.

The number of pupil teachers was 351, and of this number, 79 passed, *i.e.*, 22%, as against 6% last year.

While the above results are very much better than those of the previous year, it is clear that there is still ample room for improvement in the future.

C.—TEACHERS CERTIFICATE EXAMINATION, 1924.

The examination was held on the 16th, 17th and 18th December, 1924. The number of candidates was 126; 14, 31, and 81 candidates sitting for the First, Second and Third Class Certificates respectively.

The following certificates were awarded:—

First Class	...	...	4, or 29%.
Second Class	...	...	7, or 22%.
Third Class	...	...	7, or 9%.

There were also 11 sectional passes, 6 in Group A, and 5 in Group B.

Sewing Certificates were granted to 13 candidates who took the subject as part of the general examination for a Teachers' Certificate, and to 6 candidates (out of 24) who took the subject only.

One special certificate was earned in the subject of 'Agriculture and Hygiene.'

6.

SCHOLARSHIPS.

The total number of existing Scholarships on 31st December, 1925, was 48, distributed as follows:—

School at which held.	Boys.	Girls.
Queen's College	25	...
The Bishop's High School for Girls	...	16
Charlestown Roman Catholic School	...	1
Berbice High School for Boys	2	...
Berbice High School for Girls	...	1
St. Stanislaus' College	1	...
St. Joseph's Intermediate School	...	1
The Ursuline Convent	...	1
Total	28	20=48

The progress of the Scholars, as shown by the results of the Cambridge Local Examinations of December, 1924, and July, 1925, and the Oxford and Cambridge Joint Board Examination of July, 1925, is shown in the following tables :—

CAMBRIDGE SCHOOLS EXAMINATIONS.

PRIMARY SCHOLARS.

Name.	Year.	School.	Result.
Boys:			
F. A. Cooke	1923	Queen's College	1924. Preliminary.
P. A. Chanchong	1922	Queen's College	Preliminary.
S. H. Wan Ping	1923	Queen's College	Preliminary.
1925.			
P. A. Chanchong	1922	Queen's College	Junior (Honours).
S. H. Wan Ping	1923	Queen's College	Junior (Pass).
Girls:			
Winifred Hale	1919	Bishop's High School for Girls	School Certificate (Honours).
Marie L. Khan	1921	Berbioc High School for Girls	Preliminary.
Sarah M. Smith	1923	Bishop's High School for Girls	Preliminary.
Doris S. Cole	1922	Bishop's High School for Girls	Junior (Pass).
GOVERNMENT JUNIOR SCHOLARS.			
M. J. F. Cabral	1925	Queen's College	Junior (Honours).
F. Humphrey	1925	St. Stanislaus College	Junior (Honours)
MITCHELL SCHOLARS.			
Boys:			
H. M. Hugh	1924	Queen's College	Junior (Honours).
R. Gajraj	1924	Queen's College	Junior (Honours).
Girls:			
B. J. Smart-Dalgleish	1923	Ursuline Convent	Junior (Honours).
Waveney Manson Hing	1924	Bishop's High School for Girls	Junior (Pass).
Beryl Harewood	1925	Bishop's High School for Girls	Junior (Pass).
BLAIR SCHOLARS.			
Doris Agard	1923	Bishop's High School for Girls	Junior (Pass).

OXFORD AND CAMBRIDGE SCHOOLS EXAMINATION, JULY, 1925.

GOVERNMENT JUNIOR SCHOLARS.

Name.	Year.	School.	Result.
H. R. Harewood	1920	Queen's College	Higher Certificate.
J. A. Rodway	1922	Queen's College	School Certificate.
C. I. Drayton	1923	Queen's College	School Certificate.
MITCHELL SCHOLAR.			
V. R. Humphrey	1923	Queen's College	School Certificate.
PRIMARY SCHOLAR.			
J. J. Niles	1920	Queen's College	School Certificate.

7.

MISCELLANEOUS.

I.—MANUAL TRAINING AND DOMESTIC SCIENCE CLASSES.

Courses in woodwork for boys and domestic science for girls were held at the Lutheran Industrial School, and the Berbioc High School for Girls respectively, between May and July, and September and December. Thirty-three boys and thirty girls attended these classes.

An exhibition of articles in woodwork made at the manual work classes was held at the Lutheran Industrial School on December 17th. The work revealed a fairly high standard of efficiency, especially when it is remembered that these results were after only six months of work.

The classes in domestic science comprised sewing, laundry work, cookery, and instruction in the care of infants. The Principal reports that the attendance was not satisfactory, but progress on the whole was good.

Continuation classes along similar lines were also held at the above schools between September and December. These were for young persons over the age of fourteen.

II.—EDUCATION DAY.

By the Honorary Secretary, B. G. Teachers' Association.

Under the auspices of the British Guiana Teachers' Association, "Education Day" was celebrated on Thursday, 27th August, in the Town Hall. The attendance throughout the day was excellent, and the interest manifested showed that the institution is growing in popularity. It is to be regretted, however, that so few of our public men seem to take any real interest in the vital question of Primary Education.

The Commissioner of Education took an active part in the proceedings. Besides presiding at the first session which began at 8.30 a.m. and delivering an address on "The Training of Teachers" which formed the basis of a vigorous discussion, he took the chair at the public meeting in the evening, which was crowded.

Mr. J. Mills, then acting Assistant Inspector of Schools of Trinidad, and Mr. J. R. Vidale, guests of the Teachers' Association here, represented the Trinidad and Tobago Teachers' Union, and contributed to the discussions which took place during the day; Mr. Mills also delivered an interesting address at the evening session, his subject being "Primary Education in Trinidad."

The Reverend J. Meikle Gray, M.A., Chairman of the School Managers' Union, presided over the second session, and his address was a powerful argument in favour of the establishment of Colonial Schools. Captain E. Beckett, F.L.S., led the discussion on "The benefits to be derived from the establishment of Trade Schools in the Colony", while Mr. H. V. Taitt, M.A., Assistant Inspector of Schools and Educational District Officer, dealt with "How to Improve School Attendance."

In the afternoon, Mrs. W. Bain Gray kindly distributed the prizes and certificates to pupils of the primary schools for regular and punctual attendance during the statistical year ending 30th June last, and the bright, happy faces of the children indicated their delight with everything that was going on. At this function, Mr. A. A. Thorne, M.A., then acting Mayor of Georgetown, presided, and his practical address, as well as that by the Reverend S. E. Watson, was much enjoyed.

The addresses in the evening by the Reverend Neil M. Rattee, B.A., on "The Human Factor in Education," by Dr. R. F. Johnson, M.B., D.P.H., on "Health and Education" (and that by Mr. Mills already referred to) were all well received, as were the various musical items which interspersed the programme.

III.—INTER-SCHOOL COMPETITIONS.

The annual inter-school sports organised by the British Guiana Cricket Club were held on their grounds at Plantation Thomas on Saturday, 11th July. Twenty-eight schools entered, and Christ Church was again the champion school. It is hoped that a greater number of schools will take part in 1926.

Ten schools entered for the cricket competition. This was won by St. Joseph's Intermediate School.

Sixteen schools also entered for the football competition which was won by Main Street Boys' Roman Catholic School.

IV.—LECTURE ON MUSIC.

A lecture on music was given at St. George's School on 1st April, to Managers and Head Teachers, by Mr. Wesley Roberts, A.R.C.M.

V.—CINEMA EXHIBITIONS.

The Colony films, and Snow's pictures of Animal Life in Africa, were shown to school children at the city theatres during January. Another film, showing how malaria is spread by the action of the mosquito, was shown at the Gaiety Theatre during November.

VI.—INTERCOLONIAL CRICKET.

Half-holidays were granted to schools within a radius of ten miles from Georgetown during the Intercolonial Cricket Tournament in October.

VII.—ESSAYS ON MALARIAL FEVER.

Prizes were offered by Dr. P. M. Earle in October to Agricola Wesleyan School, for the best essays on Malarial Fever. These prizes were won by Peter Smart and Iris Solomon and presented to them at the school concert held in December, by Mr. E.M. Walcott, F.R., who presided.

8.

PERSONNEL—31ST. DECEMBER, 1925.

A.—EDUCATION BOARD.

1. His Excellency the Governor, Sir Cecil Hunter Rodwell, K.C.M.G. President.
2. The Right Reverend O. H. Parry, D.D., Bishop of Guiana.
3. The Right Reverend C. T. Galton, D.D.
4. Major W. Bain Gray, Commissioner of Education.
5. The Honourable E. G. Woolford, K.C.
6. The Honourable A. B. Brown.
7. The Honourable J. S. McArthur, K.C.
8. J. A. Luckhoo, Esquire, K.C., F.R.
9. A. R. F. Webber, Esquire, F.R.
10. R. P. Stewart, Esquire.
11. The Reverend J. B. Cropper, D.D.
12. The Reverend J. B. Brindley.

B.—STAFF OF THE EDUCATION DEPARTMENT.

- | | | |
|--|-----|---|
| 1. Commissioner of Education | ... | Major W. Bain Gray,
M.A., Ph.D. (Edin.); B. Litt. (Oxon). |
| 2. Inspector of Schools | .. | Vacant. H. A. Mathews, Acting. |
| 3. Assistant Inspector and Secretary
to Education Board | ... | Vacant. |
| 4. Assistant Inspector and Educa-
tional District Officer | ... | H. V. Taitt, M.A. (Dunelm). |
| 5. Assistant Inspector | ... | A. A. Bannister, B.A. (Dunelm.) Acting. |
| 6. Second Class Clerk | ... | W. E. Davis. |
| 7. Fourth Class Clerk | ... | L. E. Kranenburg. |
| 8. Fifth Class Clerk | ... | Miss E. Mackintosh. |
| 9. Sixth Class Clerk | ... | Miss A. Rose. |
| 10. Attendance Officers | ... | D. W. Simpson, Georgetown.
J. A. Wilson,
A. C. Armstrong, New Amsterdam.
S. Broodhagen, West Coast, Demerara.
W. B. David, Lower East Coast, Dem-
erara.
D. T. A. Jones, Upper East Coast,
Demerara.
J. A. Thompson, West Coast, Berbice.
W. Massiah, Corentyne, Berbice.
W. H. Ellis, Essequibo. |
| 11. Messenger | ... | W. Holman |
| 12. Chauffeur | ... | W. London. |

APPENDIX I.

LIST OF SCHOOLS RECEIVING FULL GRANTS-IN-AID.

N.B.—Denominations—"E"—Church of England; "S"—Church of Scotland; "R.C."—Roman Catholic; "W"—Wesleyan; "C"—Congregational; "I.C."—Independent Congregational; "O.M."—Canadian Mission; and "M"—Moravian.

No.	SCHOOL.	Denom-ination.	Number on Register.			Average Atten-dance.	No.	SCHOOL.	Denom-ination.	Number on Register.			Average Atten-dance.
			Boys.	Girls.	Total.					Boys.	Girls.	Total.	
COUNTY OF DEMERARA.						COUNTY OF DEM.—(Con.)							
<i>Georgetown—</i>						<i>East Bank—</i>							
1	Kingston	W.	101	111	212	154	76	Ruinveld	Est.	107	119	226	152
2	Kingston	E.	142	135	277	152	77	Meadow Bank	R.C.	44	38	82	61
3	Christ Church	E.	407	308	715	478	78	Houston	W.	49	47	96	70
4	St. Thomas'	S.	146	154	300	183	79	Agricola	W.	183	137	320	225
5	Main Street, Boys'	R.C.	207	...	207	143	80	Agricola	E.	96	80	176	120
6	Main Street, Girls'	R.C.	...	341	341	242	81	Providence	E.	229	69	298	187
7	Ursuline Convent	R.C.	34	229	263	173	82	Peter's Hall (Branch)	F.	71	47	118	78
8	Albert Town	E.	193	205	398	271	83	Mooha	W.	80	29	59	49
9	Albert Town	C.	239	208	447	302	84	Grove	E.	228	146	374	240
10	St. George's	E.	195	165	361	221	85	Grove (Branch)	E.	50	98	78	52
11	Bedford	W.	114	126	240	136	Total						
12	Regent Street	R.C.	138	110	248	152	1,087	740	1,827	1,229			
13	St. Leonard's	E.	95	116	211	134	<i>West Bank—</i>						
14	St. Andrew's	S.	100	100	200	128	86	Vreed-en-Hoop	E.	130	92	222	139
15	Brickdam	R.C.	304	262	566	404	87	Malgré Tout	R.C.	70	56	126	76
16	Smith Church	C.	161	154	315	210	88	Goed Fortuin	E.	97	89	186	114
17	Freeburg	E.	262	282	534	380	89	Goed Fortuin	W.	67	32	99	55
18	St. Philip's	E.	215	203	418	270	90	Bagotville	C.	58	50	106	62
19	Werk-en-Rust	W.	120	163	283	202	91	L'Heureuse Adventure...	S.	53	35	88	60
20	St. Stephen's	S.	256	241	497	335	92	Vauxhall	C.	51	36	87	62
21	Charlestown	C.	128	117	245	142	93	Noitgedacht	C.M.	129	48	177	107
22	Charlestown	R.C.	228	356	584	385	94	Mindenburg	E.	73	65	138	110
23	Saffon Street	E.	255	240	495	325	95	Nismes	W.	65	45	110	73
24	St. Barnabas'	E.	110	139	249	141	96	La Retraite	S.	97	58	155	102
25	Bourda	W.	103	111	214	153	97	Canal II	C.	97	69	166	109
26	Bourda	R.C.	190	168	358	225	98	Potosi	C.	46	37	83	55
27	Queenstown	R.C.	163	126	289	163	Total						
28	Queenstown	M.	198	179	377	202	1,081	712	1,743	1,115			
29	Lodge	E.	84	87	171	90	<i>Upper River—</i>						
30	Lodge	C.	42	51	93	60	99	Supply	E.	21	15	36	19
31	Wortmanville	R.C.	113	135	248	151	100	Hyde Park	E.	26	13	39	15
32	Albuoystown	S.	274	208	482	311	101	Low Wood	C.	39	26	65	32
Total			5,308	5,580	10,888	7,028	102	Santa	E.	31	17	48	28
<i>East Coast—</i>						<i>West Coast—</i>							
<i>Excluding Buxton.</i>						103 Dalgin							
33	Helena	C.M.	102	69	171	100	104	Muritaro	E.	32	24	56	26
34	Mahaica	W.	64	46	110	70	105	Mallali	E.	16	22	38	20
35	Mahaica	S.	61	50	111	77	106	Christianburg	S.	100	97	197	102
36	Mahaica	R.C.	75	56	131	90	107	Uitkomst	C.M.	37	27	64	45
37	De Hoop	C.M.	95	47	142	81	108	La Harmonie	C.	17	16	33	20
38	Supply	W.	144	101	245	155	Total						
39	Cane Grove	Est.	147	78	225	121	351	285	636	331			
40	Stanleyville	W.	103	75	178	104	<i>County of Berbice</i>						
41	Belmont	S.	39	38	77	51	<i>New Amsterdam—</i>						
42	Mahaicoony	S.	161	147	308	214	118	New Amsterdam	E.	216	196	412	277
43	Mahaicoony	W.	81	63	144	98	119	New Amsterdam	S.	129	124	253	170
44	Catherineville	W.	48	54	102	66	120	New Amsterdam Boys'	R.C.	181	...	181	124
45	Kitty ...	E.	144	127	271	147	121	New Amsterdam Girls'	R.C.	...	190	190	130
46	Kitty ...	W.	130	133	263	159	122	New Amsterdam	W.	96	109	205	127
47	Graham's Hall	M.	73	33	106	61	123	New Amsterdam	C.	173	113	286	166
48	Ogle ...	C.M.	101	41	142	90	124	Stanley Town	E.	75	37	112	91
49	Plaisance	E.	111	111	222	149	Total						
50	Plaisance	W.	143	111	254	161	1,244	733	1,977	1,308			
51	Plaisance	R.C.	107	51	158	128	<i>County of Berbice</i>						
52	Plaisance	C.	134	111	245	170	<i>New Amsterdam—</i>						
53	Better Hope	C.M.	172	39	211	122	118	New Amsterdam	E.	216	196	412	277
54	Beterverwagting	C.	197	137	334	222	119	New Amsterdam	S.	129	124	253	170
55	Beterverwagting	E.	207	144	351	247	120	New Amsterdam Boys'	R.C.	181	...	181	124
56	La B. Intention (Branch)	E.	45	22	67	47	121	New Amsterdam Girls'	R.C.	...	190	190	130
57	Beterverwagting	R.C.	136	84	220	135	122	New Amsterdam	W.	96	109	205	127
58	Beterverwagting	M.	71	57	128	97	123	New Amsterdam	C.	173	113	286	166
59	Lusignan	Est.	167	84	251	183	124	Stanley Town	E.	75	37	112	91
60	Nonpareil	Est.	191	37	228	170	Total						
61	Bachelor's Adventure	R.C.	111	87	198	129	870	769	1,639	1,085			
62	Enmore	E.	52	52	104	69	<i>Canje—</i>						
63	Enmore	Est.	208	109	317	196	125	Sheet Anchor	E.	108	65	173	111
64	Golden Grove	W.	166	170	326	211	126	Cumberland	W.	86	63	149	82
65	Cove and John	E.	211	201	412	258	127	Rose Hall	E.	188	92	280	170
66	Victoria	R.C.	180	193	373	215	128	Goldstone Hall	E.	50	30	80	48
67	Victoria	W.	64	42	106	64	129	New Forest	E.	38	29	67	60
68	Hope	Est.	41	25	66	55	130	Baracara	S.	50	42	92	50
69	Ann's Grove	W.	228	164	390	256	131	Sandvoort	E.	46	28	74	48
70	Ann's Grove	R.C.	91	89	180	133	Total						
Total			4,589	3,278	7,867	5,101	566	349	915	569			
<i>Buxton—</i>						<i>East Coast & Corentyne</i>							
71	Buxton	C.	160	100	260	170	132	Bohemia	C.M.	75	19	94	65
72	Friendship	W.	117	131	248	193	133	Gibraltar	E.	36	36	72	50
73	Friendship (upper)	E.	196	163	364	205	134	No. 1.	S.	105	71	176	136
74	Friendship (lower)	E.	98	113	211	106	135	Fyrish	C.	128	72	200	127
75	Friendship	R.C.	199	200	399	256	136	Albion	C.M.	298	46	345	214
Total			770	712	1,482	930							

APPENDIX I.—(Contd.)

LIST OF SCHOOLS RECEIVING FULL GRANTS-IN-AID.

No.	SCHOOL.	Denom-ination.	Number on Register.			Average Atten-dance.	No.	SCHOOL.	Denom-ination.	Number on Register.			Average Atten-dance.
			Boys.	Girls.	Total.					Boys.	Girls.	Total.	
COUNTY OF BERBICE— (Con.)						COUNTY OF ESSEQUEBO— (Con.)							
<i>E. C. & Corentyne Coast—(Con.)</i>													
137	Rose Hall	...	276	80	413	219	Mackay Memorial	... C.M.	74	26	100	73	
138	Port Mourant	...	227	135	307	167	Sans Souci	... W.	124	76	200	132	
139	Port Mourant	...	174	56	309	160	Total	...	840	320	800	558	
140	Auchlyne	...	177	49	233	75	<i>River & other Islands—</i>						
141	Liverpool	...	76	85	125	118	181	Philadelphia	... S.	143	99	242	103
142	Manchester	...	105	67	190	96	182	Good Hope	... E.	49	48	97	55
143	Alness	...	79	51	146	120	183	Parika	... E.	34	21	55	51
144	Kildonan	...	114	42	185	67	184	Hyde Park	... C.	50	29	79	53
145	Wellington Park	...	64	83	106	134	185	Blake	... S.	22	22	44	31
146	Eversham	...	119	20	202	156	186	Fort Island	... C.	18	12	30	24
147	Leeds	...	110	87	197	69	187	Bartica	... E.	106	74	180	133
148	New Market	...	99	28	127	21	188	Baracara	... C.	12	7	19	9
149	No. 59	...	32	10	42	87	189	Great Trolley Island	... S.	23	21	44	30
150	Massiah	... C.M.	145	24	169	81	190	Caria Caria	... C.	24	14	38	19
151	Skeldon	...	237	131	368	225	Total	...	481	347	828	508	
152	Orealla	...	54	44	98	81	<i>North and South Coast</i>						
Total	...	...	2,731	1,355	4,084	2,582	191	Good Hope	... S.	67	61	128	105
<i>East Bank—</i>													
153	Providence	... C.	104	62	166	99	192	Aurora	... S.	78	34	112	81
154	Edinburgh	... S.	71	45	116	78	193	Riverstown	... E.	53	49	101	68
155	Lonsdale	... C.	50	34	84	60	194	Huis't Dieren	... S.	77	46	123	74
156	Friends	... S.	86	65	140	84	195	St. John's	... E.	97	80	177	109
157	De Kinderen	... E.	20	21	44	23	196	Johanna Cecilia	... W.	87	53	145	97
158	Mara	... S.	57	32	89	48	197	Abram Zuil	... W.	67	32	99	64
Total	...	...	357	252	639	392	198	Queenstown	... W.	88	57	145	104
<i>West Bank—</i>													
159	Resignol	... W.	131	72	203	133	199	Queenstown	... E.	66	70	136	94
160	Ithaca	... C.	100	73	173	107	200	Taymouth Manor	... E.	95	46	141	102
161	Fearn	... I.C.	17	11	28	20	201	Bush Lot	... W.	119	74	193	131
Total	...	...	243	166	404	260	202	Holy Trinity	... E.	122	67	189	111
<i>Upper River—</i>													
162	Hollandia	... S.	15	13	28	17	203	Henrietta	... R.O.	93	111	204	124
163	Calouni	... C.	24	20	44	35	204	La Belle Alliance	... E.	77	57	134	84
164	Coomacka	... E.	11	8	19	14	205	Daniel's Town	... E.	198	123	326	265
165	Sand Hills	... E.	24	20	44	26	206	Hampton Court	... E.	147	80	227	170
Total	...	...	74	61	135	92	207	Dartmouth	... E.	100	67	167	110
<i>West Coast—</i>													
166	No. 8	... C.	112	95	207	156	Total	...	1,631	1,116	2,747	1,893	
167	No. 9	... E.	100	48	148	102	<i>Pomeroon and N. W. D.</i>						
168	Bath	... Est.	142	29	171	106	208	St. John's	... R.C.	15	26	41	23
169	Hopetown	... C.	114	100	214	146	209	Liberty	... W.	40	38	78	42
170	Hopetown	... E.	117	104	221	151	210	Hackney	... E.	50	39	89	50
171	No. 28	... E.	150	129	279	174	211	St. Francis	... R.C.	44	28	72	37
172	Lichfield	... E.	223	185	408	270	212	Jack Low	... E.	21	23	44	30
173	Belladrum	... E.	235	191	426	290	213	Tapacooma	... E.	30	16	46	36
Total	...	...	1,193	881	2,074	1,395	214	Cabacaburi	... E.	46	37	83	66
COUNTY OF ESSEQUEBO—													
<i>Leguan & Wakenaam—</i>													
174	Enterprise	... E.	67	35	102	64	215	Marlborough	... R.C.	61	41	102	73
175	Louisiana	... E.	27	25	52	32	216	Wakepoa	... E.	36	42	78	54
176	Richmond Hill	... E.	66	43	111	87	217	Waramuri	... E.	53	48	101	48
177	Fredericksburg	... S.	81	73	159	113	218	Santa Rosa	... R.C.	79	79	157	81
178	Zeelandia	... E.	41	35	76	58	219	Morawhanna	... E.	26	23	51	31
							220	Morawhanna	... R.C.	63	73	136	82
							221	Hosororo	... R.C.	49	43	92	48
							Total	...	613	557	1,170	701	
							Grand Total	...	23,654	18,151	41,805	27,072	

APPENDIX II.

LIST OF SCHOOLS RECEIVING GRANTS UNDER REGULATION 80, (i.e. SCHOOLS IN REMOTE OR SPARSELY POPULATED DISTRICTS).

No.	School.	Denomination.	Number on Register.			Average Attendance.	Percentage of Total on Register.
			Boys.	Girls.	Total.		
COUNTY OF DEMERARA.							
<i>East Coast (excluding Buxton)—</i>							
1	Unity	C.M.	50	27	77	46	60
2	Novar	C.M.	97	71	168	124	74
3	Esau & Jacob (Mahaiomy Creek)	C.M.	10	7	17	14	82
4	Biaboo (Mahaica Creek)	C.M.	34	19	53	31	58
5	St. Cuthbert's (Mahaica Creek)	E.	16	16	32	23	72
<i>West Bank—</i>							
6	Canal II. Polder	C.	58	19	77	42	55
7	Canal II.	C.M.	84	27	111	52	47
<i>Upper River—</i>							
8	Akyma	S.	*	*	*	*	*
9	Clarksdale	C.M.	36	23	59	40	68
COUNTY OF BERBICE.							
<i>Corentyne Coast—</i>							
10	Crabwood Creek	C.M.	45	11	56	22	39
11	Gibraltar	C.M.	36	36	72	50	69
<i>East Bank—</i>							
12	Lighttown	S.	11	9	20	13	65
<i>Upper River—</i>							
13	Ituni	L.	19	14	33	15	45
14	Maria Henrietta	L.	32	25	57	24	42
15	St. Lust	L.	11	13	24	7	28
<i>West Coast—</i>							
16	Bush Lot	C.M.	116	63	179	106	59
COUNTY OF ESSEQUEBO.							
<i>Leguan and Wakenaam—</i>							
17	Maryville	C.M.	57	24	81	53	65
18	Endeavour	C.M.	39	22	61	37	61
19	Success	C.M.	59	33	92	57	62
20	Bankhall	C.M.	16	10	26	20	77
21	Ridge	C.M.	20	19	39	26	67
<i>River and other Islands—</i>							
22	Hog Island	C.M.	22	6	28	20	71
23	Hamburg	C.M.	43	15	58	42	72
24	St. Ignatius	R.C.	*	*	*	*	*
25	Upper Essequibo	R.C.	*	*	*	*	*
26	Saxacalli	S.	12	14	26	14	54
27	St. Edward's	E.	7	15	22	7	32
28	Agataash	E.	12	9	21	19	90
29	Tumatumari	E.	3	6	9	6	67
<i>North and South Coasts—</i>							
30	Cspoey	W.	4	7	11	5	45
<i>Pomeroon & N.W.D.—</i>							
31	Dutchman Creek	R.C.	20	5	25	15	60
32	Arakaka	W.	5	6	11	6	55
33	Nursery	R.C.	14	15	29	11	38
34	Mabaruma	R.C.	25	20	45	22	49
35	Imotero	E.	16	16	32	17	59

* Numbers not available.

APPENDIX III.

PROVINCIAL DISTRIBUTION OF SCHOOLS RECEIVING FULL GRANTS-IN-AID.

DISTRICT.	No. of Schools.	Number on Register.			Daily Average Attendance.	% of Total Number of Pupils on Register.
		Boys.	Girls.	Total.		
COUNTY OF DEMERARA—						
Georgetown ...	32	5,308	5,530	10,838	7,028	65
East Coast (excluding Buxton) ...	35	4,589	3,278	7,867	6,101	64
Buxton ...	5	770	712	1,482	930	63
East Bank ...	10	1,087	740	1,827	1,229	67
West Bank ...	13	1,031	712	1,743	1,115	64
Upper River ...	10	351	285	636	331	52
West Coast ...	9	1,244	733	1,977	1,308	66
Total ...	117	14,380	11,990	26,370	17,037	65
COUNTY OF BERBICE—						
New Amsterdam ...	7	870	769	1,639	1,085	66
Canje ...	7	566	349	915	569	62
East and Corentyne Coasts ...	21	2,731	1,353	4,084	2,582	63
East Bank ...	6	387	252	639	392	61
West Bank ...	3	248	156	404	260	64
Upper River ...	4	74	61	135	92	68
West Coast ...	8	1,193	881	2,074	1,395	67
Total ...	56	6,069	3,821	9,890	6,375	64
COUNTY OF ESSEQUEBO—						
Leguan and Wakenaam ...	7	480	320	800	558	70
River and other Islands ...	10	481	347	828	508	61
North and South Coasts ...	17	1,631	1,116	2,747	1,893	69
Pomeroon and N.W.D. ...	14	613	557	1,170	701	60
Total ...	48	3,205	2,340	5,545	3,660	66
Grand Total	221	23,654	18,151	41,805	27,072	65

APPENDIX IV.

DENOMINATIONAL DISTRIBUTION OF SCHOOLS RECEIVING FULL GRANTS-IN-AID.

DENOMINATION OF SCHOOLS.	No. of Schools.	Number on Register.			Average Attendance.	Percentage of total on Register.
		Boys.	Girls.	Total.		
Anglican ...	89	9,831	7,227	17,108	11,131	65
Presbyterian ...	33	3,473	2,465	5,938	3,797	64
Roman Catholic ...	28	3,149	3,306	6,455	4,178	65
Wesleyan ...	29	2,946	2,470	5,416	3,568	66
Congregational ...	29	2,634	2,028	4,662	3,057	66
Canadian Mission ...	10	1,229	396	1,615	933	61
Moravian ...	3	342	269	611	360	59
Total	221	23,654	18,151	41,805	27,072	65

APPENDIX V.

DISTRIBUTION OF PUPILS IN SCHOOLS RECEIVING FULL GRANTS-IN-AID.

	DIVISIONS.												TOTAL.		
	PREPARATORY.			LOWER.			MIDDLE.			UPPER.					
	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.
Between 5 and 6 years—															
East Indians ...	1,034	588	1,622	10	1	11	...	...	...	...	...	...	1,044	589	1,633
Others ...	1,909	2,063	3,912	41	68	109	...	...	1	...	1	...	1,950	2,072	4,022
Between 6 and 14 years—															
East Indians ...	1,866	836	2,702	2,808	1,080	3,838	1,777	537	2,314	574	146	720	7,025	2,549	9,574
Others ...	2,472	2,139	4,611	4,948	4,824	9,770	8,976	3,890	7,866	1,514	1,632	3,146	12,908	12,485	25,393
Over 14 years—															
East Indians ...	...	...	...	...	...	...	13	5	18	99	15	114	112	20	132
Others ...	2	5	7	12	9	21	147	61	208	454	361	815	615	436	1,051
Total East Indians ...	2,900	1,424	4,324	2,818	1,031	3,849	1,790	542	2,332	673	161	834	8,181	3,158	11,339
Total Others ...	4,388	4,147	8,530	4,999	4,901	9,900	4,123	3,952	8,075	1,968	1,993	3,961	15,473	14,993	30,466
Grand Total ...	7,288	5,571	12,854	7,817	5,932	13,749	5,913	4,494	10,407	2,641	2,154	4,795	23,654	18,151	41,805

APPENDIX VI.

DISTRIBUTION OF PUPILS IN SCHOOLS RECEIVING GRANTS UNDER REGULATION 80.

	DIVISIONS.												TOTAL.		
	PREPARATORY.			LOWER.			MIDDLE.			UPPER.					
	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.	Boys.	Girls.	Total.
Between 5 and 6 years—															
East Indians ...	168	117	285	1	...	1	...	...	...	...	...	...	169	117	286
Others ...	54	65	119	5	4	9	...	...	...	...	...	...	59	69	128
Between 6 and 14 years—															
East Indians ...	130	91	221	198	92	287	178	37	215	35	9	44	538	229	767
Others ...	61	46	107	113	106	219	56	37	92	17	5	24	246	194	440
Over 14 years—															
East Indians ...	...	...	...	...	...	...	4	...	4	4	...	4	8	...	8
Others ...	...	...	...	2	1	3	9	4	13	...	3	3	11	8	19
Total East Indians ...	298	208	506	196	92	288	182	37	219	39	9	48	715	346	1,061
Total Others ...	115	111	226	120	111	231	64	41	105	17	8	27	316	271	587
Grand Total ...	413	319	732	316	203	519	246	78	324	56	17	75	1,031	617	1,648

APPENDIX VII.

(a) NUMBER OF TEACHERS AND PUPIL TEACHERS EMPLOYED IN SCHOOLS RECEIVING FULL GRANTS-IN-AID.

DISTRICT.	No. of Schools.	Certificated Teachers.				Uncertificated Teachers.				Pupil Teachers.				Total.				Total.		
		East Indians.		Others.		East Indians.		Others.		East Indians.		Others.		East Indians.		Others.		Males.	Females.	Male and Female.
		Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.					
COUNTY OF DEMERARA—																				
Georgetown	32			36	48			9	124			24	50			69	222	69	222	291
East Coast (excluding Buxton)	32	1		37	13	7		16	102	7		26	29	15		78	150	93	150	243
Buxton	5			8	3			4	11			8	8			20	22	20	22	42
East Bank	10			7	6	2	1	2	28			4	4	2	1	13	33	15	33	54
West Bank	13	1		13	1	1	1	4	31	1		3	6	3	1	20	38	23	39	62
Upper River	10	1		6	1	1	1	2	8			1		2	1	9	9	11	10	21
West Coast	9			13	3			2	21			8	10			23	34	23	34	57
Total	117	3		120	80	11	3	39	325	8		74	107	22	3	232	513	254	516	770
COUNTY OF BERBICE—																				
New Amsterdam	7			8	5			3	17			9	11			20	32	20	32	52
Canje	7			2				3	16			3				14	16	14	16	30
East and Corentyne Coasts	21	6		18	3	9		3	42	13		7	14	25		35	59	60	59	119
East Bank	6			5	1			1	11			1	2			7	14	7	14	21
West Bank	3			2	2			1	7			1				4	9	4	9	13
Upper River	4			4				3								4	3	4	3	7
West Coast	8			10	1			3	26			9	6			22	33	22	33	55
Total	56	6		55	12	9		21	119	12		30	33	25		106	166	131	166	297
COUNTY OF ESSEQUEBO—																				
Leguan & Wakenaam	7	1		6	1	1	1	3	14				2	2	1	9	17	11	18	29
River and Islands	10			9	2			3	15				4			12	21	12	21	33
North & South Coasts	17			16	6	2		11	43	2		7	9	4		34	58	38	58	96
Pomeroon & North West District	14			8	5			4	20			1	2			13	27	13	27	40
Total	48	1		39	14	3	1	21	92	2		8	17	6	1	68	123	74	124	198
Grand Total	221	10		214	106	22	4	81	536	22		112	157	53	4	406	802	459	806	1265

(b) NUMBER OF TEACHERS AND PUPIL TEACHERS EMPLOYED IN SCHOOLS RECEIVING GRANTS UNDER REGULATION 80.

DISTRICT.	No. of Schools.	Certificated Teachers.				Uncertificated Teachers.				Pupil Teachers.				Total.				TOTAL.		
		East Indians.		Others.		East Indians.		Others.		East Indians.		Others.		East Indians.		Others.		Males.	Females.	Males & Females.
		Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.					
COUNTY OF DEMERARA—																				
East Coast (excluding Buxton)	5					4	2	3	3					4	2	3	3	7	5	12
West Bank	2					4		1	1					4		1	1	5	1	5
Upper River	2							1	1							1	1	1	1	2
Total	9					8	2	4	4					8	2	5	4	13	6	19
COUNTY OF BERBICE—																				
Corentyne Coast	2					2		1	1					2		1	1	3	1	4
East Bank	1							1	1							1	1	1	1	2
Upper River	2							3	1							3	1	3	1	4
West Coast	1					1	2	1	1					1	2	1	1	2	3	5
Total	7					3	2	6	3					3	2	6	3	9	5	14
COUNTY OF ESSEQUEBO—																				
Leguan and Wakenaam	5					9			5					9			5	10	5	15
River and Islands	8			2	1	1		4	2					1		6	3	7	3	10
North and South Coasts	1								1								1		1	1
Pomeroon and North West District	5							2	4							2	4	2	4	6
Total	19			2	1	10		6	12					10		8	13	18	13	31
GRAND TOTAL	35			2	1	21	4	17	19					21	4	19	20	40	24	64

SUMMARY.

Trained and Certificated	...	...	...	89
Certificated, but not trained	...	...	...	244
Uncertificated	...	...	...	705
Pupil Teachers	...	...	...	291
Total	...	...	...	1,329

APPENDIX VIII.

CASES REFERRED BY THE EDUCATION DEPARTMENT AND HEARD IN THE MAGISTRATES' COURTS DURING THE YEAR 1925.

DISTRICT.	No. of visits to parents.	Cautions Issued.	COMPLAINTS.			DECISIONS.					Convictions.	Money value of Fines.
			No. of complaints preferred.	Defendants not found; and cases pending.	Total complaints heard.	Orders obtained for first offence.	Reprimands.	No. of Fines.	Withdrawals.	Dismissals.			Total No.
Georgetown, Kirty, Lodge and East Bank, Dem.	4,863	269	1,294	495	799	454	30	150	165	...	634	\$ 238 90
Lower East Coast, Dem.	2,202	228	276	1	275	139	4	53	79	...	196	109 48
Upper East Coast "	5,069	75	270	62	208	103	3	43	59	...	149	70 50
West Coast, West Bank, Dem., and Leguan	723	243	278	28	250	110	20	55	65	...	185	79 50
Essequibo and Wakeham	2,573	12	315	10	305	154	14	121	12	...	293	143 12
N/A., Canje and East Bank Ber.	4,181	185	170	24	146	80	21	11	30	4	112	24 16
West Coast, Berbice	4,972	168	329	...	329	182	21	54	72	...	257	132 44
Corentyne "	3,594	213	296	...	296	162	39	45	50	...	246	83 00
Total	28,177	1,393	3,228	620	2,608	1,388	152	532	532	4	2,072	\$ 881 10

CASES REFERRED BY HEAD TEACHERS IN RIVER DISTRICTS (AUTHORISED UNDER SECTION 10 (3), ORDINANCE 3 OF 1876).

60	66	46	...	46	21	2	15	8	...	38	19 58
----	----	----	-----	----	----	---	----	---	-----	----	-------

APPENDIX IX.

EMPLOYMENT OF CHILDREN ON SUGAR ESTATES. (OCTOBER, 1925).

Total Number of Estates reported to be employing children under 12 years.	Age of youngest Child reported to be employed.	Months in which employed.	Usual working hours.	Distance from children's houses to places of work.			Remarks.
				Maximum.	Minimum.	Average.	
22	Under 6 years	Feby.—April & July—December— (All the year on some estates).	6 a.m. to 6 p.m.	8 miles.	$\frac{1}{2}$ mile.	3 miles.	Both East Indians and Blacks are employed, but the former are in a large majority.

APPENDIX X.

STATE-AIDED SECONDARY SCHOOLS.

NUMBERS UNDER INSTRUCTION ON 1st OCTOBER, 1925.

	10 years and under 12.		12 years and under 14.		14 years and under 16.		16 years and under 18.		18 years and over.		Total.	
	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.
Berbice High School for Boys	3	...	8	...	13	...	13	...	2	...	39	...
Berbice High School for Girls	...	14	...	19	...	14	...	13	...	4	...	64
Bishop's High School for Girls	...	5	...	7	...	9	...	7	...	...	...	28
St. Joseph's Intermediate	4	4	9	11	14	4	1	1	1	2	29	22
Ursuline Convent	...	33	...	45	...	46	...	13	...	...	...	137
Total	7	56	17	82	27	73	14	34	3	6	68	251

APPENDIX XI.

FINANCIAL STATEMENT OF THE EDUCATION DEPARTMENT, 1925.

January to December, 1925.	Amount Voted.	Amount Expended.	Saving.	Excess.
FIXED ESTABLISHMENT—				
1. Commissioner of Education ...	\$ 3,960 00	\$ 3,960 00	\$...	\$...
2. Inspector of Schools ...	2,580 00	1,907 00	1,649 00	...
3. Assistant Inspector and Secretary, Education Board ...	2,148 00	1,528 00		
4. Assistant Inspector and Educational District Officer ...	1,800 00	2,704 00	...	...
5. Four Emergency Inspectors ...	1,440 00	180 00		
6. Second Class Clerk ...	1,704 00	1,704 00	240 00	...
7. Fourth Class Clerk ...	1,176 00	936 00		
8. Fifth Class Clerk ...	768 00	768 00	...	270 00
9. Sixth Class Clerk ...	528 00	798 00		
10. Two Compulsory Attendance Officers ...	1,296 00	1,296 00	...	...
11. One Compulsory Attendance Officer ...	540 00	540 00		
	\$ 17,940 00	\$ 16,321 00	\$ 1,889 00	\$ 270 00
UNFIXED ESTABLISHMENT—				
12. Messenger ...	\$ 358 00	\$ 353 00	\$ 5 00	...
13. Chauffeur ...	360 00	360 00	...	...
	\$ 718 00	\$ 713 00	\$ 5 00	...
OTHER CHARGES—				
14. Travelling Expenses ...	\$ 2,000 00	\$ 2,242 00	\$...	\$ 182 00
15. Do do ...	60 00	...		
16. Examinations ...	1,600 00	1,605 00	...	5 00
17. Stationery and Miscellaneous ...	460 00	529 00	...	79 00
18. Freight and Insurance ...	38 00	38 00	...	...
19. Needlework Exhibitions ...	240 00	72 00	168 00	...
20. Instruction in Agriculture, Hygiene and Infant Care, &c. ...	2,000 00	1,918 00	82 00	...
21. Grants to Primary Schools ...	316,000 00	316,534 00	...	534 00
22. Government Scholarships ...	2,700 00	2,411 00	289 00	...
23. Bonuses to Head Teachers of Winners of Government Primary Scholarships ...	300 00	175 00	135 00	...
24. Training of Teachers ...	8,000 00	7,971 00	29 00	...
25. Uniforms of 3 Compulsory Attendance Officers, Chauffeur, and Messenger ...	180 00	177 00	3 00	...
26. Local School Attendance Officers and sundry expenses connected therewith ...	3,600 00	3,588 00	12 00	...
27. Bicycle Allowances to Educational District Officer and 3 Compulsory Attendance Officers ...	96 00	93 00	3 00	...
SPECIAL EXPENDITURE—				
28. Purchase of two Typewriters... ..	270 00	270 00	...	...
29. Purchase of Motor Car	882 00	882 00	...	...
	\$ 338,416 00	\$ 338,505 00	\$ 711 00	\$ 800 00
RECAPITULATION.				
Fixed Establishment	\$ 17,940 00	16,321 00	\$ 1,889 00	\$ 270 00
Unfixed "	718 00	713 00	5 00	...
Other Charges	338,416 00	338,505 00	711 00	800 00
Total	\$ 357,074 00	\$ 355,539 00	\$ 2,605 00	\$1,070 00

ITEMS OF EXPENDITURE UNDER HEAD "EDUCATION MISCELLANEOUS," WHICH ARE CONTROLLED BY THE COMMISSIONER OF EDUCATION.

January to December, 1925.	Amount Voted.	Amount Expended.
Grant to Barbice High School for Boys	\$ 1,728	\$ 1,728
Grant to Barbice High School for Girls	720	720
Grant to St. Joseph's Intermediate School	480	480
Grant to Bishop's High School for Girls, Georgetown	2,000	2,000
MISCELLANEOUS EXPENDITURE.		
Education Board, including Clerical Assistant	168	168
Honorarium, Secretary, Board of Examiners	50	50
Educational Officer from England (Salary and Passage)	1,803	1,803
	\$ 6,949	\$ 6,949



British Guiana.

REPORT

ON THE

LANDS AND MINES DEPARTMENT,

FOR THE YEAR

1924.



Printed by the Authority of His Excellency the Governor.

GEORGETOWN, DEMERARA :

"THE ARGOSY" COMPANY, LIMITED, PRINTERS TO THE GOVERNMENT OF BRITISH GUIANA.

1925

INDEX.

SUBJECT.	PARAGRAPHS.
COLONY LANDS.	
Amounts outstanding for ...	87
Craig, Pln. ...	85-86, 88-89
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DEPARTMENT OF LAND AND MINES,

GEORGETOWN, DEMERARA,

25th April, 1925.

SIR,

I have the honour to submit the following report on the administration of this Department during the year ended 31st December, 1924.

2. A comparative statement of revenue collected during the years 1923 and 1924 is given in Appendix 1 hereto, from which it will be seen that the total revenue collected in 1924 was \$312,875.28 as against a total of \$309,161.28 collected in 1923; an aggregate increase of \$3,714.

3. Briefly summarised the principal increases and decreases and their causes are as follows:—

INCREASES.

Head.	Amount.	Cause.
Duty on Transports	\$ 251 69	Increase in number and value of Transports.
Colony Lands—Rents	1,143 10	Collection of back rents.
Crown Lands—Rents	885 30	Do. do.
Fees, Forests	604 38	Increase in number of applications filed.
Royalty on Timber	2,752 63	Increased activity in Industry.
Royalty on Balata	2,000 98	Do. do.
Claim Licences—Precious Stones	2,605 70	Increase in number of claims in existence.
Miscellaneous—Sale of Tablets	199 14	Larger number of Olsim Licences issued.
Royalty on Bauxite	7,555 41	Due to increased export of ore.
Miscellaneous—Sundries	1,966 24	Due to collection of debts to the Government Canteen taken over from District Commissioner.
Sale of Crown Lands	202 46	Increased sales.

DECREASES.

Acreege Tax	515 05	Decreased area under cane cultivation.
Boat Regulations	124 00	Fewer candidates for examination.
Balata Licences	1,737 98	Due to 1923 figures being inflated by back rents brought to account.
Fees, Mines	301 94	Fewer duplicates and copies of documents issued.
Prospecting Licences	340 00	Decrease in number of Licences issued.
Claim Licences—Gold	640 00	Decrease in number of Gold Claims in existence.
Exclusive Permissions	2,229 21	Due to abandonment and expiry of Permissions existing in 1923.
Mining Concessions	323 13	Abandonment of Concessions.
Royalty on Gold	492 60	Decrease in alluvial washing.
Registration Labourers, Mining	661 44	Fewer numbers registered.
Royalty on Diamonds	2,621 18	Decrease in production due to abnormal weather conditions.

4. *Expenditure.*—The following table gives the expenditure during 1924 under the various votes and shows the savings and excesses in each case :—

	Description.	Total voted 1924.	Total Expenditure 1924.	Excess.	Savings.
VIII.—DEPARTMENT OF LANDS & MINES—					
1-18	Fixed Establishment ...	\$ 67,026 00	\$ 66,348 15	...	\$ 677 85
19-32	Unfixed Establishment ...	26,078 00	23,139 07	...	2,938 93
33	Travelling, Labour and Materials for Surveys ...	31,036 00	27,476 81	...	3,609 19
34	Stationery ...	1,250 00	1,038 08	...	211 92
35	Miscellaneous ...	240 00	172 32	...	67 68
36	Instruments and Drawing Materials ...	500 00	449 09	...	50 91
37	Upkeep and Purchase of Boats and Launches ...	1,800 00	1,731 25	...	68 75
38	Office Rent ...	300 00	300 00	...	...
39	Purchase of Iron paals ...	500 00	200 00	...	300 00
40	Uniforms for Indian Captains, Messengers, etc... ..	350 00	219 64	...	130 36
41	Freight, Insurance, etc. ...	385 00	809 55	\$ 424 55	...
42	Duty Allowance to Cashier ...	84 00	84 00	...	...
43	Purchase of Typewriter ...	135 00	265 00	130 00	...
44	Upkeep of Stock Farm, Annai ...	300 00	283 71	...	16 29
45	Plns. Windsor Forest and La Jalousie ...	6,900 00	6,582 41	...	317 59
46	Pln. Hague ...	3,522 00	3,422 54	...	99 46
47	Pln. Christianburg ...	26 00	25 05	...	95
48	Craig Irrigation Scheme (Maintenance) ...	1,850 00	1,836 78	...	13 22
49	Water Rates for Leper Asylum, Police Station and Post Office areas at Mahaica ...	5 00	3 38	...	1 62
50	Pln. Triumph ...	76 00	84 82	8 82	...
51	„ Huis' t Dieren ...	20 00	18 75	...	1 25
52	„ Best ...	27 00	27 00	...	...
53	„ Clonbrook ...	40 00	35 10	...	4 90
54	Plns. Unity and Lancaster ...	39 00	22 50	...	16 50
55	Morawhanna Town ...	375 00	374 10	...	90
56	Ordnance Fort Lands ...	141 00	93 60	...	47 40
57	Bartica ...	1,179 00	1,176 60	...	2 40
58	Miscellaneous Expenditure in connection with Crown and Colony Lands ...	100 00	6 00	...	94 00
59	Topographical and Economic Survey of country situate between the Essequibo, Mazaruni and Oyuni Rivers ...	20,000 00	17,961 53	...	2,038 47
60	Revised Reprint of Mining Regulations for sale to the public ...	100 00	...	...	...
60(a)	Reprinting of Crown Lands Regulations, 1919 ...	100 00	100 00	...	...
<i>Forestry Branch—</i>					
61	Fixed Establishment ...	3,240 00	3,240 00	...	...
62	Unfixed Establishment ...	510 00	...	...	510 00
63	Travelling ...	100 00	...	...	100 00
64	Miscellaneous ...	175 00	65 04	...	109 96
	Total ...	\$ 168,559 00	\$ 157,591 87	\$ 563 37	\$ 11,530 50

5. It will be seen that there was a net saving of \$10,967.13 on the total amount voted for 1924.

6. The excess of \$424.55 on the Vote for Freight, Insurance, etc., was due to additional charges for freight to the Upper Mazaruni and Rupununi Districts consequent on the stationing of a Warden and Sub-Warden at Kamakusa, Mazaruni, and Land Officer at Annai, Rupununi. This excess was covered by savings on other votes and a Special Warrant obtained.

SAVINGS.

7. The saving under the head "Fixed Establishment" accrued from savings on salaries of Chief Clerk, Drawing Office Superintendent and one 1st Class Surveyor respectively; also to the abolition of the post of 5th Class Officer rendered vacant through the retirement of Mr. Melville.

8. *Unfixed Establishment.*—Principally due to savings under Boats Crews and Station Allowances granted to District Officers.

9. *Travelling, Labour and Materials for Surveys.*—Due to certain of the Survey Staff being engaged on the Topographical and Economic Survey for which a special amount was voted, and to less routine work being undertaken.

10. *Purchase of Iron Paals.*—Fewer paals were purchased owing to a large stock on hand:

11. *Topographical and Economic Survey*.—A large amount of time was occupied in organising the work and importing necessary instruments and supplies consequently less time was spent in the field than was anticipated.

12. *Forestry Branch*.—Practically no work was done in this direction owing to the single Forestry Officer having been seconded for duty with the British Empire Exhibition.

13. *Sugar Estates*.—The area under Sugar Cane cultivation at the 30th September, 1924, as given by the Acreage Tax returns furnished to this Department by the Proprietors under Ordinance 23 of 1898 was 55,871 acres, an increase of 750 acres compared with the figures furnished for the same period in 1923. The figures for the three counties and a comparative statement for the past five years are given in Appendices 2 and 3.

14. The areas under mixed cultivation on sugar estates at the 30th September, 1924, as compared with the figures for 1923 are as follows :—

	1923.	1924.
Rice	9,130 acres.	9,145 acres.
Coconuts	6,037 "	4,070 "
Rubber	642 "	638 "
Rubber and Limes mixed	210 "	210 "
Limes	134 "	123 "
Coffee	53 "	32 "
Plantains and rice mixed	342 "	...
Plantains and general cultivation	1,515 "	1,776 "
	<hr/>	<hr/>
	18,063 acres.	15,994 acres.

15. *Rice*.—The total area under rice cultivation throughout the Colony is given by the Department of Science and Agriculture as 29,406 acres against 34,965 acres in 1923.

CROWN LANDS.

AGRICULTURE, GRAZING, ETC.

16. A comparative statement giving the number and area of Grants, Leases, Licences and Permissions issued, renewed and extended during the years 1923 and 1924 is attached as Appendix 4.

17. *Grants for Agricultural Purposes*.—There were 70 Conditional Grants by Purchase issued during the year for an aggregate area of 515 acres. This is a decrease of 57 Grants totalling 628 acres as compared with 1923. Eleven Free Grants were issued to returned soldiers of the British Guiana Contingent of the British West Indies Regiment for an aggregate area of 104 acres, making a total of 262 Free Grants of Crown land of an aggregate area of 3,037 acres so issued at the 31st December last, apart from Grants of Colony land.

18. *Leases for Agricultural Purposes*.—Ninety-three Leases were issued in 1924 for an aggregate area of 2,151 acres, as against 96 leases for an aggregate area of 6,742 acres in 1923.

19. *Cattle-Grazing Leases*.—No leases were issued in 1924, as against 3 Leases for an aggregate area of 8,985 acres issued in 1923.

20. *Licences of Occupancy*.—Sixteen Licences were issued in 1924 for an aggregate area of 1,733 acres as against 20 licences for an aggregate area of 5,393 acres in 1923.

21. *Cattle-Grazing Permissions*.—Three Grazing Permissions were issued in 1924 for an aggregate area of 66,995 acres, as against 18 Permissions for an aggre-

gate area 610,560 acres in 1923. Of the Permissions issued in 1924 seven were re-issues of Permissions in respect of tracts of 50 square miles each in the Rupununi District, held by various parties who had surrendered them in favour of the Rupununi Development Company, Ltd.

22. *Permissions to occupy Crown Lands for Business, &c., Purposes.*—Two hundred and thirty permissions were issued during 1924 for an aggregate area of 764 acres as against 128 permissions for an aggregate area of 127 acres in 1923.

23. *Quarrying Licences.*—No licences to quarry were issued during 1924. One licence to quarry stone on 11 acres of Crown land was issued in 1923.

24. The total quantity of stone quarried at the Government quarry at Seba was 20,320 tons. Of this quantity 11,921 was supplied to the Georgetown Municipality, 2,016 to the Public Works Department for roads and drainage works, 3,408 tons to the Sewerage Contractors and 1,407 tons to the Demerara Bauxite Company at Mackenzie.

25. No stone was quarried at the Penal Settlement during the year.

26. No accidents from quarrying operations were reported during the year.

27. *Inspection of Tracts held under Conditional Titles.*—The number of tracts inspected during the year totalled 482, covering an aggregate of 6,468 acres. Of this area 2,434 acres were found to be under cultivation or otherwise beneficially occupied. Of the number inspected 33 tracts were found to be either completely abandoned or in such a state as to indicate that there was no real likelihood of the holders making beneficial use of the tracts notwithstanding the warnings previously served, and the titles were consequently cancelled. The aggregate area of the tracts cancelled was 345.4 acres, or about .053 per cent. of the area inspected.

28. The proportion of tracts held under conditional titles which were actually inspected were remarkably small owing to the inadequacy of the existing staff to cope with this work.

29. At the end of 1924 the total area held under conditional titles such as Leases and Licences of Occupancy was 2,740,444 acres. This total includes the areas taken out under Cattle Grazing Leases and Licences, but not the extensive areas held under Cattle Grazing Permissions on the Abary, Berbice and Rupununi Savannas. The area held under Grants of Crown land to the end of 1924 aggregate 740,289 acres of a total of 3,480,733 acres alienated.

30. By arrangement with the Director of Science and Agriculture the inspections of agricultural tracts in the North West District are carried out by the resident Agricultural Instructor and this arrangement has, by courtesy of Sir John Harrison, since been extended to the Pomeroon and Moruca Districts.

FOREST AND FOREST PRODUCTS.

31. *Leases.*—At the end of 1924 there were 7 Leases for timber cutting in existence covering the aggregate area of 238,066 acres as against 4 Leases at the end of 1923 covering an aggregate area of 85,665.

32. *Licences.*—There were 255 Woodcutting Licences in existence at the 31st December, 1924, covering an aggregate area of 163,633 acres, as against 319 Licences comprising an aggregate area of 203,069 acres in 1923. Of the area held under Woodcutting Licences at 31st December, 1924, 70 Licences covering an aggregate area of 29,550 acres were issued during the year and 185 Licences already in existence covering an aggregate area of 134,083 acres were renewed for a further period. In addition to this, there were three Licences issued for the collection of Mangrove bark and those Licences already in existence were renewed,

the total number of Licences being 11 with an aggregate area of 125,038 acres at the 31st December, 1924, as against 121,408 acres in 1923.

33. *Permissions*—Nine new permissions for the construction and use of cart paths across Crown land outside licensed areas were issued during the year and 12 permissions already in existence were renewed. The numbers for 1923 were 16 and 12 respectively.

34. Fifteen new permissions were issued for depots for storage of timber, charcoal, &c., on Crown Land outside licensed areas, and 17 were renewed. The numbers for 1923 were 9 and 2 respectively.

35. *Balata Licences*.—205 Licences were issued during the year of which 200 were re-issues in respect of areas already licensed.

36. *Timber and Timber Products*.—Details of the quantity of these and other forest products declared as having been removed from Crown land during 1923 and 1924 together with the amounts of royalty collected thereon are given in Appendix 5. From this it will be seen that the quantity of greenheart declared totalled 510,816 cubic feet, an increase of 129,505 cubic feet or 33.9 per cent. on the production for 1923.

37. Out of the total quantity of greenheart declared 168,257 cubic feet were exported, and the balance—342,559 cubic feet—was absorbed by the local market as shown in Appendix 6.

38. *Hardwood other than Greenheart and Mora*.—The quantity on which royalty was declared totalled 32,885 cubic feet as against 6,034 cubic feet during 1923—an increase of 26,857 cubic feet or 445 per cent.

39. *Mora*.—The quantity declared totalled 38,296 cubic feet as against 26,936 cubic feet—an increase of 11,360 cubic feet or 42 per cent.

40. *Crabwood and Soft Woods*.—Of the softer varieties of woods of all kinds production totalled 66,150 cubic feet—a decrease of 24 per cent. as compared with previous year's production of 87,189 cubic feet.

41. Of the total quantity of soft woods exported Crabwood or B.G. Mahogany totalled 56,572 cubic feet or 85.5 per cent. of the total production.

42. The undermentioned wood products show the following increases:—
Shingles 1,943,100 or 364 per cent. Boards, Planks, and Scantlings 65,719 feet or 658 per cent. Vat Staves 59,664 or 351.5 per cent. Paling Posts 10,763 feet or 11.5 per cent. Hardwood Beams and Spars 47,307 feet or 136.8 per cent.

43. Decreases will be noted under the following heads:—

Firewood	...	...	3,711 tons or 6.5%.
Charcoal	...	...	2,609,724 lbs. or 24.28%.
Paling Staves	...	...	16,282 in number or 21.18%.

44. The total amount of royalty collected on forest products during the year totalled \$51,510.88 as against \$46,803.89—an increase of \$4,706.99 or 10.05%.

45. On the whole the upward tendency in the lumber trade which was foreshadowed in the previous year's report has been justified. Several applications have been filed in respect of large areas for the cutting of greenheart and crabwood, while a good deal of interest has been aroused in Mora, of which a large quantity was sawn into railway sleepers.

46. *Forest Products other than Timber*.—The quantity of balata declared in 1924 was 1,236,211 lbs. as against 1,136,162 lbs., an increase of 100,049 lbs. or 8.8%.

47. *Gums other than Balata*.—762 lbs. of gums other than balata were declared as against 280 lbs. during 1923.

48. The number of labourers registered to bleed balata during the year numbered 3,565 as against 3,363 in 1923. The number of general labourers (*i.e.*, other than balata and mining) registered during the year totalled 4,353 as against 2,278 during the previous year. This class of labourer is employed principally in connection with the timber industry, *vide* Appendix 14.

49. *Seizures and Prosecutions.*—Thirty two-seizures were made by Officers of this Department of articles being illegally removed from Crown Lands. Of these 18 were sold realizing a total of \$265.05 including royalty amounting to \$98.93. The other 14 were unsold up to the close of the year.

50. The revenue from rents and royalties on all forest industries—exclusive of office, survey and inspection fees—was as follows:—

	1923.	1924.
Rents—Timber and Timber Products ...	\$ 8,540 41	\$ 8,525 71
Balata and Gums ...	15,657 98	14,920 00
Permissions ...	147 00	1,418 29
Royalty—Timber and Timber Products ...	23,968 51	26,721 14
Balata and Gums ...	22,723 24	24,731 84
Miscellaneous—Fines and Seizures ...	310 78	169 44
Sundries, barks, orchids, etc....	124 67	78 04
	<hr/>	<hr/>
	\$71,472 59	\$76,564 46
	<hr/>	<hr/>

51. The total collected as above represents a fraction over 24 per cent. of the total revenue of the Department collected from all sources during 1924.

52. *Exports and Imports of Forest Industries.*—A comparative statement of the quantities and values of these for 1923 and 1924 is given as Appendix 6. This shows that 168,257 cubic feet of rough greenheart logs were exported during 1924 valued at \$124,664 as against 150,896 cubic feet valued at \$117,835 during 1923—an increase of 17,361 cubic feet. From this it is gathered that the average F.O.B. price of greenheart was 74.9c. per cubic foot.

53. The quantity of Greenheart lumber and scantling exported during 1924 was 142,846 feet valued at \$17,220 as against 111,433 valued at \$12,320. The average export price per foot of lumber exported during 1924 was 12.05 cents as compared with 11.15 cents per foot during 1923.

54. The export of Crabwood or B.G. Mahogany during 1924 was negligible. A good deal of interest was however aroused in connexion with this wood during the year and there is reason to believe that there will be an improvement in the Crabwood industry in the near future.

55. A marked increase will be noted under the head of railway sleepers; the number exported during 1924 being 39,238 valued at \$31,519 as against 8,916 valued at \$5,598 exported during 1923, an increase of 340 per cent. and 463 per cent. in the quantity and value respectively.

56. The average export value per sleeper during 1924 works out at 80.3 cents per sleeper as against 62.8 cents during 1923. In this connexion it is interesting to note that Baltic Pine sleepers, which are in general use on English railways, can be supplied at Redbridge, England, and creosoted at a total cost of \$2.04 each. As Mora sleepers would probably be used without creosoting, they would be at a relative advantage as compared with Baltic Pine; on the other hand freight rates would form an important factor in determining the selling price.

57. Of the total quantity of railway sleepers exported, 13,233 valued at \$5,509 were shipped to the British West Indies; 25,595 valued at \$25,595 to South Africa;

260 valued at \$208 to United Kingdom and 150 valued at \$207 to the Dutch West Indies.

58. *Forestry Branch*.—Very little work was done in connection with forestry during the year. Mr. L. S. Hohenkerk, Forestry Officer, who was seconded for duty as Assistant Representative of the Colony at the British Empire Exhibition, left early in February to attend the Exhibition and was still employed in that capacity up to the end of the year.

59. *Mora Sleepers*.—A shipment of 55 Mora railway sleepers was made by the Government to the Imperial Institute, London, for practical trial on English railroad tracks. Three of the sleepers were retained by the Institute for comparison and reference purposes, and the balance sent to the Southampton depôt of the Southern Railway where they were stacked for further seasoning. The Engineer was unwilling to place the sleepers in the main line as some of them were warped, but it was arranged that all except a very small number should be laid in a busy siding of the Southern Railway (L. & S.W. Sec.) which would admit of a thoroughly satisfactory test being made. The sleepers would not be creosoted since such treatment appeared to be unnecessary.

60. It was proposed to put the trial into operation at once and to send reports at intervals to the Imperial Institute which would be considered by the Timbers Committee and transmitted to this Department with the Committee's observations.

61. The Institute reported that Mora possesses considerable technical merits and may find an opening as a sleeper timber in England if the practical trials proved satisfactory and if the sleepers are supplied in good condition.

62. A shipment of Mora sleepers was also made by Messrs. Bayley & Co., for practical trial on English Railways. One hundred sleepers were laid on the main line of the Midland Railway Company, between London and Rugby. The Institute has expressed its willingness to keep in touch with the experiments and report progress at intervals.

63. On the 7th May, 1924, Mr. L. S. Hohenkerk gave evidence before the Imperial Institute Timbers Committee regarding the present position of the timber industry in British Guiana.

64. Mr. A. G. S. Davenport who was appointed Forestry Surveyor in connexion with the new Forestry Department in September, 1924, arrived in the Colony on 22nd January last, and has been temporarily employed by this Department pending the inauguration of the new Forestry Department.

65. Arrangements were made for housing the new Forestry Department in the upper storey of the G.P.O. building.

66. A considerable amount of interest was displayed in the British Guiana exhibit of Colony woods at the Wembley Exhibition and as a direct result several enquiries have been received in respect of areas available for cutting Crabwood and other Colony timbers.

COLONY LANDS.

(Lands, the property of the Colony of British Guiana as distinct from lands vested in the Crown).

67. *Plantation Grove*.—This Estate was sold to Mr. H. M. Nehaul on 2nd December, 1918. Mr. Nehaul has been granted an extension of time until 1926 to pay balance of instalments due, in the meanwhile he continues to pay interest on unpaid balance.

Interest collected	\$ 210.55
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68. *Pln. Olonbrook*.—This Estate has been sold out and is now under the control of the Local Government Board,

Rates paid by Government	...	\$ 35.10
Instalments collected	...	50.00

69. *Plantations Unity and Lancaster.*—These Estates are under control of the Local Government Board. A few House lots remain unsold.

Rates paid by Government	...	\$ 22.50
Instalments collected	...	20.00

70. *Plantation Triumph.*—This Estate has been sold out and is under the control of the Local Government Board with the exception of that portion known as the McKenzie Empolder comprising an area of 204 acres, which is leased to the Triumph Sugar Coy.

Rates paid by Government	...	...\$ 84.82
Revenue collected	...	... 934.82

71. *Pln. Thomas.*—The Churchman's Union Cricket Club, British Guiana Cricket Club, and Demerara Cricket Club continue to lease their respective portions on the South side of the Public Road.

Revenue collected	...	...\$ 3.00
Expenditure	...	... Nil.

72. *Plantation Best.*—This Estate is under the control of Local Government Board. Nine house lots remain unsold.

Rates paid by Government	...	...\$ 27.00
Revenue	...	... Nil.

73. *Plantations Christianburg and Wismar.*—The Demerara Bauxite Coy. continue to lease 1835 acres for mining Bauxite. There are a few lots rented out under a yearly tenancy for cultivation purposes and for cutting wood.

Rates paid by Government	...	...\$ 25.05
Revenue collected	...	... 598.37

74. *Plantations Windsor Forest, La Jalousie, and Hague.*—These Estates are under the control of this Department; the major portion being leased to small cultivators, principally East Indians.

75. *Drainage.*—All drainage trenches were kept clean throughout the year. The rainfall recorded on the front part of Windsor Forest for the year was 85 inches 90 parts.

76. *Water Supply.* All Water Supply trenches were kept clean throughout the year.

77. The drainage koker and outlet trench at Windsor Forest remained silted up throughout the year, and consequently the drainage of Windsor Forest and La Jalousie had to be effected through the LaJalousie koker. This proved adequate, however, and no flooding took place.

78. In order to afford relief to those Estates situated between the Eastern side of Pln. Windsor Forest and Vreed-en-Hoop, the connexion of which with the Windsor Forest sluice had been out off during the previous year, the trench situated on the South side of these Estates which is connected with the Vreed-en-Hoop sluice, was thoroughly cleaned.

79. The scheme inaugurated by the Director of Public Works for the drainage of the West Coast Estates from and inclusive of Pln. Vreed-en-Hoop to LaJalousie was started during the year, operations had, however, to be suspended on account of the heavy rains.

80. As the water level in the Boerasirie Conservancy Canal remained high, there was no necessity at any time to put these Estates on time run.

81. *House Lots*.—All drains were kept clean and many of them were re-dug. Streets were made up where necessary and special attention paid to the sanitary conditions of these lots.

All drains were kept clean and dams made up when necessary.

82. *Pasture Windsor Forest*.—This pasture, which comprises 225 acres, was maintained in good order. The dams were made up and kept free from bush and fences repaired.

83. The following table shows the areas occupied and remaining available on each of the three Estates, respectively, at the close of the year as compared with the previous year:—

	Windsor Forest.		La Jalquale.		Haguea.	
	1923 Acres.	1924 Acres.	1923 Acres.	1924 Acres.	1923 Acres.	1924 Acres.
Leased	466.23	470.22	711.2	785.2	539.35	541.60
Granted to Returned Soldiers	...	...	5.75	5.75	...	...
Laid out but not leased	68.25	64.25	319.25	245.25	75	72.75
Not yet laid out	...	...	...	...	480	480
	534.47	534.47	1036.2	1036.2	1094.35	1094.35

84. The following statement shows the revenue and expenditure in connexion with each Estate during the year:—

	Revenue collect- able for 1924.	Revenue collect- ed in 1924.	Balance Outstanding at end of 1924.	Actual Expendi- ture during 1924.
Pln. Windsor Forest	\$ 3,880	\$ 4,062 51	\$ 144 74	\$ 3,423 91
Pln. La Jalquale	4,432	3,902 52	5,442 52	3,158 30
Pln. Haguea	4,565	4,141 67	5,675 00	3,482 54
	\$ 12,877	\$ 12,706 70	\$ 12,459 26	\$ 10,064 93

The figures showing the revenue collected during the year 1924 include revenue outstanding at the close of the preceding year.

85. *Pln. Craig*.—All water supply and drainage trenches were kept clean throughout the year and dams made up where necessary.

86. The following table shows the financial position of this Estate:—

	Revenue collectable.	Revenue Collected.	Balance Outstanding.	Actual Expenditure.
Pln. Craig	\$ 1,196 25	\$ 740 28	\$ 976 03	\$ 1,836 78

87. From the foregoing tables it will be seen that there is a large aggregate balance of \$13,435.29 outstanding. This is due principally to restriction of exports during the war, the big drop in the prices of paddy and abnormal weather conditions. Now that conditions are more normal pressure is being brought to bear on those who are indebted and there is every reason to believe that practically all the amounts outstanding will be eventually recovered.

88. The following statement shows the area occupied and remaining available at Pln. Craig at the close of the year as compared with 1923:—

	1923.	1924.
Leased	117.5	63 acres
Not leased	342.5	397 ..
	460	460

89. The drainage and irrigation scheme for this property has proved unsatisfactory from its inception and it has been decided to remedy the defects in the early future.

90. *Bourda, Georgetown.*—Two plots of land are rented to the Georgetown Cricket Club and Georgetown Football Club respectively.

Revenue collected ... ..	...\$ 73
Expenditure ... ..	...Nil

91. *America Stelling, Newtown.*—Four strips of land adjoining Mud Lots 26 and 27, Water Street, known as America Stelling, are leased to Messrs. Smith Bros. & Co., Ltd., at an annual rental of \$720. Of this amount a moiety of \$360 is paid to the Georgetown Town Council.

Revenue collected ... ..	...\$ 720
Paid to Town Council ... ..	... 360

92. *Kalacoon, Essequibo River.*—This land is leased to the Bartica Agricultural Estates at an annual rental of \$50.

There was no expenditure.

93. *Liberty Island.*—204.93 acres of this Island is leased to Mrs. Willems at an annual rental of \$35.75 while 246 acres is leased to small farmers. The Revenue collected amounted to \$99.07.

There was no expenditure.

94. *Huis't Dieren.*—This estate is under the control of the Local Government Board, only a few lots remain unsold.

Rates paid by Government ... ..	...\$ 18 75
Instalments collected ... ..	... 5 00

95. *Kortberaad.*—S. N. Moakan, to whom this place was sold, paid up his instalment and interest.

Instalment ... ..	...\$ 225 00
Interest ... ..	... 73 65
Overdue interest ... ..	... 9 80

There was no expenditure.

CROWN LANDS.

MINING.

Gold.

96. *Production.*—The output of gold during 1924 from all sources amounted to 7,187 ozs. 2 dwts., 17 grs. of an estimated value of \$129,314.39 as against 7,262 ozs. 2 dwts., 3 grs. declared during 1923, a slight decrease of 74 ozs. odd *vide* Appendix 7.

97. Of the total output 3,343 ozs. 11 dwts. 1 gr. came from the Essequibo District while the Potaro ranked second with a production of 2,690 ozs., *vide* Appendix 8.

98. The quantity declared as coming from the North Western District of the Colony (Barima, Barama and Waini) was 862 ozs. 14 dwts. 14 grs.

99. *Alluvial Washing*.—The output of gold by this method was only 1,895 ozs. odd which again marks the lowest production since 1885. This continued decrease is due to the greater attraction of the diamond fields and there appears to be little or no prospect of an increased production by this method so long as the price of diamonds is maintained at its present attractive figure.

100. *Dredging*.—The New Guiana Gold Coy. continued operations in the Konawaruk and produced 654 ozs. of gold. The Company's concessions were transferred to Brigadier-General C. E. Rice towards the end of the year.

101. The Minnehaha Development Company also continued operations in the Minnehaha and Mahdia Creeks. The quantities produced being 2,574 and 2,064 ozs. respectively.

102. A statement showing the production of each Company engaged in dredging is given as Appendix 10.

103. A new type of plant or dredge was operated by Mr. J. C. Dunn who is the local manager and partner of a small syndicate which was formed to work that portion of the Barima River between Betsy Hill and Eclipse Falls which is held by Messrs. H. N. G. Cobbe and E. Millard under Dredging Concession No. 169.

In this connexion the Commissioner, North West District, reports as follows:—

“ The ground to be worked not being considered sufficient for a dredging plant, a plant consisting of a single bucket or scoop of about 16 c. ft. capacity, adapted from the design of those in use in the Fen District and used for cleaning out drains and canals, but with certain alterations, is being tried. This is the first occasion such an implement has been used in the Colony to recover gold, as far as I am aware of and if a success, should enable the small man to carry out dredging work on a small scale on several of the rivers and creeks of the Colony where it would not pay to erect a large dredging plant.

“ The design of bucket or scoop is semi-circular, the front edge being fitted with a hard steel cutting plate. At each end of this plate but on the scoop or bucket are attached the main pulling chains. On the back part of scoop or bucket is a shaft fitted with a ratchet and pawl, two light chains being fastened to the shaft and to the same shackle as the main chain. To the back of scoop or bucket is attached a wire tail-rope carried across the river through a pulley and back to the hauling engine.

“ The first operation is to set the scoop or bucket at the right cutting angle by means of the back shaft, this being wound up until the front edge is inclined to cut into the surface. The scoop or bucket is then pulled backwards into the river to the desired spot, the pull reversed until the strain shows bucket to be full when the ratchet is released and the scoop or bucket falls over on the half round bottom and comes in filled. The tipping is done according to requirements on the banks.

“ The power plant in use consists of a vertical boiler 4 ft. x 4 ft., a hauling engine 6 ft. x 10 ft. fitted with specially designed loose drums with clutches. The scoop or bucket is hoisted up a ramp on to a platform 12 ft. square and 12 ft. high, a rope is then hooked to the scoop or bucket and the engine turns it over and back into position for the next trip. The gravel from the scoop or bucket is placed into a shute, rabbled, and then on to the usual type of sluice.”

104. *Hydraulicng*.—No operations of this nature were carried out during the year, *vide* Appendix 11.

105. *Quartz Mining*.—No operations of this nature were carried out during the year, *vide* Appendix 9.

DIAMONDS.

106. During 1924 the number of diamonds declared at this department was 1,055,425 aggregating 185,585 carats of a total declared export value of \$4,119,950 (£858,322 19s. 5d.), a decrease in number of 86,000, in weight of 28,889 carats and in value of \$838,517.74 (£174,691. 3s. 11d.)

107. The average number of stones to the carat worked out at 6.2 as against 5.33 in 1923 and 5 in 1922

108. The average value per carat as declared to the Customs Authorities by the exporters works out at \$22.20 as against \$23.12 a carat in 1923 and \$24.00 per carat in 1922.

109. The largest stones declared weighed $18\frac{1}{16}$, $16\frac{5}{8}$, $16\frac{1}{8}$, 16, $14\frac{1}{8}$, $14\frac{1}{16}$, 13, $12\frac{1}{16}$, 12, 12, $10\frac{7}{8}$, $10\frac{1}{4}$, $9\frac{3}{4}$, $9\frac{3}{8}$, $9\frac{1}{4}$, $8\frac{1}{2}$, $8\frac{1}{16}$, 8, $7\frac{5}{8}$, $6\frac{3}{4}$.

110. As in 1923 practically the whole output was won by local diggers from the shallow deposits of gravels worked by hand methods.

111. A rotary diamond washing machine similar to and modelled after the hand-driven machines in use in South Africa was introduced during the year in the Mazaruni District where the first machine of this type was successfully operated on lands belonging to Mr. Manoel Veira at Puzzle Creek, Kurupung, which had been previously worked several times by the ordinary hand methods. No single piece of the machine weighs more than 150lbs. and transport therefore presents no difficulties. It has proved economical in labour and has effected an increased extraction of diamonds over the hand-jigging methods at present universally in use.

112. The number of men required to operate a machine continuously varies from 30 to 40 according to the extent of the stripping necessary and the machine will do the work of 20 toms. It is stated that the ground is in general adapted to treatment by the machine after some of the concentrating difficulties are understood.

113. The ground (gravels, etc.) is charged into a hopper passing through a revolving $\frac{3}{8}$ " mesh wire screen, the under-sized going to a 5 foot diameter rotary pan. The concentration is done by teeth set at an angle, water carrying away the light ground over the centre rim (controlled). The concentrates are cleaned up at the end of each day by the man in charge and the diamonds are safe from thieves throughout the operation. Up to the present these machines have been turned by hand, but gasolene engines are on order to drive them. At the time of writing Mr. Veira has four machines operating and under construction, and it is his intention to largely increase this number for use both on his own lands and on lands of others which he will finance and operate if desired.

114. The question whether the diamond industry should not contribute to a larger extent than at present to the general taxation of the Colony, again engaged attention, proposals to that end being made by the Government to the Combined Court at its Annual Session. These proposals which took the form of an increase of the royalty and export tax on diamonds were strongly opposed by the Elective Members and were eventually withdrawn and referred to a Committee which was appointed to revise the Customs and Tax Ordinances. The report of this Committee had not been published up to the end of the year.

115. The following statement shows the production of diamonds for the different districts:—

		Stones.	Carats.
Mazaruni	...	848,932	150,213½
Puruni	...	73,269	9,590½
Cuyuni	...	4,362	549½
Potaro	...	128,110	25,080½
Berbice	...	612	134½
Barima	...	140	17½
		<u>1,055,425</u>	<u>186,585½</u>

116. *Mazaruni District.*— I visited this District in July last accompanied by Mr. Vincent Roth who was proceeding to the District to take up duty as Warden and Magistrate, and by the Surgeon General who was also proceeding to the district on inspection duty in connexion with the Hospital and Dispensaries which are being established in the district. My report in connexion with this visit was published as Sessional Paper No. 47/24.

117. *Revenue.*—The revenue collected in the District in connexion with this Department totalled \$13,972.02. Of this amount \$9,113.64 was collected at Kama-kusa and \$4,858.38 at Bartica. In addition to the foregoing \$1,917.34 was collected in connexion with the Commissary's Department and \$521 in connexion with the Magistrate's Department.

118. At the close of the year there were 1,581 Precious Stones, Claims in existence.

119. *Production*

		No. of Stones.	Carats.
Mazaruni	...	848,932	150,214
Puruni	...	73,269	9,591
Cuyuni	...	4,362	549
		<u>926,563</u>	<u>160,354</u>

In connexion the Warden reports:—

“ In 1922 the centre of activity was in the Kurupung area. In 1923 it moved across to the Eping and Perenong rivers. All these areas lie between the Southern bank of the Mazaruni and the Pakaraima Escarpment. Towards the end of that year there were signs of increased activity on the Northern bank of the Mazaruni in the direction of the Puruni. The jumping-off places were Enachu and Buck Canister landings. About the middle of 1924 this latter area was estimated to be worked by almost half the total population of the fields. The shopkeepers and diamond buyers concentrated at Oranapa landing some 18 miles above Kama-kusa, where, towards the close of the year, some nine shops were doing a more or less brisk business. The lines of the Topographic and Economic Survey which was begun during the year are proving of great benefit to prospectors and many new claims have been located on the heels of the Surveyors. About mid-year there was a rush to the Issenero District but owing to the small size and poor quality of the gems found and to the great distance up river of the new field the shout soon died down and most of the shops were removed to more accessible positions of the District.

120. The decreased output for 1924 is to be attributed principally to the following causes and not in any way to the district being worked out as has been suggested:—

(a) The unprecedented drought which prevailed during the first six months of the year not only rendered transport extremely difficult but retarded operations materially, and compelled a number of diggers to return to the coast.

(b) The heavy rains which followed the drought not only hampered those already in the district but deterred others from proceeding to the fields.

(c) The rush to the newly-discovered Potaro fields it is estimated diverted some 1,200-1,500 diggers to that district.

(d) At the close of 1923 the majority of the shopkeepers decided to stock their shops in advance to provide for the anticipated rush in the opening months of the next year and the additional facilities thus provided at Christmas time for returning home in the empty cargo boats resulted in an unusually large number of diggers leaving the district, who were delayed in returning after the holiday owing to the requisite transport facilities not been available, in consequence of the shops being then already fully stocked.

121. *Traffic*.—During the year 870 boats carrying 16,380 persons arrived in the Mazaruni fields whilst 856 boats with 18,969 persons left. In addition to these there cleared from Bartica 41 boats with 889 persons for Puruni and 38 boats with 448 persons for Cuyuni.

122. In Appendix 16 will be found a return of the boats leaving Bartica monthly during the year for the Mazaruni and Puruni respectively and the number of passengers carried.

123. *Population*.—At the end of July it was estimated that there was a population of 6,600 persons in the Mazaruni, and working on this basis using the monthly arrival and departure figures recorded at Kamakusa, it appears that the greatest activity occurred in March when 8,300 were at work and the quietest period in December when only 4,000 persons remained in the district.

124. *Health*.—The health of the district was on the whole good. A Dispenser was stationed at Kamakusa throughout the year whilst a second arrived in August and a third in October. These latter were stationed at Kurupung and Enachu where Dispensaries have been opened. Quarters for a fourth Dispenser were prepared at Eping but had not been occupied at the end of the year. In addition to 19 patients treated in the temporary hospital at Kamakusa 1,445 were attended to outside. Six deaths occurred in the Kamakusa Hospital.

125. *Law and Order*.—The Warden-Magistrate held thirty-six courts during the year and disposed of fifty-seven cases. Fines were inflicted aggregating \$2,391 of which \$521 was paid. The Warden reports that during the early part of the year there was a considerable amount of lawlessness but that the unruly element was eventually convinced that good behaviour is the best policy.

126. Claim raiding was rife throughout the year. As this is an indictable offence which cannot be dealt with by the Warden-Magistrate and aggrieved parties are reluctant to undergo the expense and loss of time involved in travelling to the Coast to prosecute the guilty parties, offenders escaped being punished.

127. The police stationed in the Upper Mazaruni numbered twenty men and one Officer. The latter and eight men were stationed at Kamakusa and four men each at Oranapai, Eping and Kurupung.

128. The Eping Station was removed from a point above to one below the mouth of the Pereng river in order to give the Police better control of the traffic going in and out of the latter. Twenty-one prisoners were incarcerated in Kamakusa prison.

129. *Public Works.*—In September work was begun on the construction of the Hospital, Medical Officer's quarters and the Sub-Warden's quarters at Kamakusa. Progress was very slow owing to the unsatisfactory nature of the convict labour employed and to various other causes.

130. At Kaburi portage an iron shelter was erected by the Public Works Department for the shelter of goods whilst boats are being hauled over.

131. *Communication.*—A mail and freight service between Bartica and Kamakusa was inaugurated in March and carried on throughout the year.

132. The Wireless Station at Kamakusa was maintained and several improvements effected. The charge for messages was reduced from \$2 to \$1 per word but apparently this is still too high to permit the service becoming popular. There is also great need for a subsidiary station at Enachu.

133. *Potaro District.*—As regards the production of diamonds in the Potaro District the Warden reports :—

“ There has been a remarkably rapid development. With a few hundred men in the district during the year 1923, at the close of which the output was 17,012 stones equal to 2,561½ carats, the number had increased to close on 3,000 during 1924 and the production at the 31st December was 128,110 stones equal to 25,080½ carats. The increase is attributed to the fact that some very rich ground was located in the Hoit Creek, a tributary on the right bank of the Potaro at Amatuk and in Maple Creek, a tributary of the Uewang on the left bank of the Potaro river.

“ With the expansion of the industry there has been a corresponding increase in the number of shops. There are now 13 shops between Potaro Landing and Amatuk as compared with 4 at the commencement of the year.

“ Work is being confined to the Kuribrong river on the left bank Potaro and both banks of the Potaro between Kangaruma and Amatuk.

“ An expedition beyond the Kaieteur has reported fair prospects but as yet no lands have been actually located.”

134. *Police Stations.*—With the large increase in population due to increased activity in the diamond industry it became necessary to strengthen the Police Force, and the building at Kangaruma formerly owned and utilised by Messrs. Sprostons, Ltd., as a rest-house, was converted into a Police Station and staffed with a N.C.O. and 3 or 4 constables.

In this connexion the Warden reports :—

“ They (the Police) patrol the district between Kangaruma and Amatuk regularly and have done very excellent work in preserving order in the district. In cases of complaints or disputes under the Mining Regulations they visit the claims and order all parties to cease work pending investigation or decision by the Warden.”

135. Assistance was rendered from time to time to sick and destitute diggers by giving them free return passages through to Georgetown. During the congestion which followed the first rush Messrs. Sprostons, Ltd., kindly consented to issue passes at a reduced fare in cases certified by the Warden to be genuine.

BAUXITE.

136. No Regulations have yet been approved by the Secretary of State for the Colonies for the exploration or working of bauxite deposits and no new titles were issued during the year.

137. As in 1923 the only concern operating in the Colony is the Demerara Bauxite Coy. (a branch of the Northern Aluminium Coy. of Canada). This Company holds some 3,000 acres odd of Crown and Colony lands under Leases obtained in 1916, and mining operations were carried on throughout the year, 154,324 tons of selected and crushed ore being exported, on which royalty amounting to \$15,432.40 was paid.

MINERAL OIL.

138. No operations in search of oil were conducted during the year. Two Exploration Licences were issued.

MINING TITLES.

139. *Free Exploration Permissions and Concessions to First Discoverers.*—The time was extended for a further period of three years from 31st December, 1923, within which Exclusive Permissions would be granted to first discoverers of any metal or mineral other than Gold, Precious Stones, Bauxite or Mineral Oil to occupy and test the value of any unoccupied Crown lands free of rent or other charges, including royalty; and thereafter of Concessions on similar terms for a period of ten years to the first discoverer in commercial quantities of any such metal or mineral.

140. No concessions to mine or dredge for gold were issued during the year, but five Exclusive Permissions to occupy and explore Crown land for Gold, Silver, and Valuable Minerals and Precious Stones were issued. Ninety-seven Claim Licences were issued to mine for Gold only, whilst 995 were issued to mine for Precious Stones or Gold and Precious Stones combined. 1,920 Prospecting Licences were issued and 15,635 Mining Privileges were issued as against 15,835 during the previous year, *vide* Appendix 13.

HEALTH IN MINING DISTRICTS.

141. On the whole the health in the Mining Districts during the year was good in spite of the abnormal weather conditions which prevailed for the greater part of the time.

142. The total number of deaths reported was 269, of these 235 were returned as being due to natural causes, three to causes unknown and 27 to drowning. Considering that 1,726 boats travelled up and down the Mazaruni River with its numerous falls and rapids conveying 35,349 persons, the loss of 27 lives representing 0.7% of the total who travelled up and down was remarkably small, and bears testimony to the extraordinary skill and foresight of the Captains and Bowmen and to the efficient manner in which the Regulations which governed this traffic are administered.

LEGISLATION.

143. *Mining Regulations.*—The Mining Regulations, 1924, came into force during the year. They comprise in consolidated form the Mining Regulations, 1905, the Mining (Payment of Royalty) Regulations, 1908, the Mining Regulations Amendment Regulations, 1915, and the Mining Regulations, 1922.

144. The following is a list of the principal amendments and additions:—

Clause 1.—The scope of the Regulations has been enlarged by making them applicable to all minerals and metals, their ores and compounds, other than Bauxite, etc.

Clause 2.—The extended set of definitions appearing in the Mining (Consolidation) Ordinance, 1920, have been incorporated.

Clause 3 (c).—Makes provision for refusing to issue a Prospecting Licence to a labourer convicted of absconding or, for any other reason the Commissioner may think fit.

Clause 6.—Landing places and creeks set aside for drinking purposes have been added to places excluded from location.

Clause 7.—Claim Licence fee (or rental) made payable in advance at the time of filing location papers instead of within 14 days after the last advertisement of the application as formerly.

Clause 14.—The provision requiring verification of the boundaries of a claim precedent to the issue of a licence has been omitted.

Clause 21.—The full royalty per carat on diamonds has been made payable at time of declaration instead of as hitherto in two instalments, one at time of declaration and the other on export.

Provision has also been made for the fixing of the royalty on diamonds from time to time by the Governor and Court of Policy to enable revision of the rate of royalty by Resolution (as in the case of gold) without the necessity for amending the Regulations.

Clause 25 (2).—A minimum size of location boards (9 in. x 6 in.) has been fixed.

Clause 33 (1).—Applications for Concessions and Leases to be addressed to the Commissioner of Lands and Mines for transmission to the Governor-in-Council.

Clause 33 (2).—Requirement as to stating the nationality of applicant has been added.

Clause 40 (4).—Procedure on opposition to issue of Claim Licences amplified to distinguish between procedure on opposition on the grounds of right, title and interest, and on the grounds that the opposer is a creditor for a liquidated sum. Provision is also added where opposition is for a debt, for the amount claimed to be lodged with the Commissioner to avoid delay pending legal proceedings.

Clause 47 (2).—Empowers Commissioner to refuse to issue Mining Privilege to person convicted of absconding.

Clause 74 (2).—Power taken to grant land for the erection of shops to others besides claim-holders, i.e., to the holders of licences to trade in Gold or Precious Stones.

Clause 76 (a-d).—Amplifies requirements to be complied with by prospector who cuts path or trail as the previous regulations did not set out the particulars to be notified to the Commissioner or Warden with sufficient clearness.

Clause 79.—As the definition of "Claim" includes "Concession" and survey is obligatory in the case of concessions the words "located under Part I. of these Regulations" have been inserted to make it clear that the provisions of Clauses 79-81 under the head "Surveys" relate to claims other than Concessions.

Clause 80.—Provides that in certain cases the expenses of survey of a claim in dispute shall be borne by the parties affected in such proportion as the Commissioner or Warden may decide.

Clause 87.—Actual cost of survey substituted for charge of 10 cents per acre under old Regulations.

Clause 100 (2).—Provides for the issue of a warrant for the apprehension of an absconding labourer by a J. P.

Clause 102 (2) and (3).—Vests the Commissioner with power to debar from registration a person convicted of absconding and provides for the photographing of such person.

Clause 150.—An addition made prohibiting interments at a distance less than $\frac{1}{4}$ mile from the nearest inhabited building or camp.

Clause 161 (b).—A new clause to ensure greater safety during blasting operations on a mine.

Part X.—170-189.—Provision made to enable the Assistant Commissioner of Lands and Mines to hear and determine disputes.

MEANS OF COMMUNICATION.

145. The Potaro-Konawaruk road, Tiger Creek road and Kangaruma Trail in the Potaro District, and the Camaria Road in the Cuyuni District, were maintained by the Public Works Department.

146. The Barima Road, the Five Stars Trail, the Eclipse Portage and the Morawhanna-Wanaina Road in the North West District, were maintained by the Commissioner of that District as Deputy of the Director of Public Works.

147. The Cattle Trails from Takama on the Berbice River and Arakwa on the Demerara River to the Rupunni Savannas were maintained by the Public Works Department with the assistance of the Land Officer, Rupunni, who supervised the section from Kurupukari on the Essequibo River to Annai at the commencement of the Rupunni Savannas.

SURVEYS.

148. *Topographical and Economic Survey.*—The first annual appropriation of \$20,000 was voted by the Combined Court for a topographical and economic survey of the Colony at its Annual Session in 1923.

149. The area which it was decided should first engage attention was that portion of the colony situated to the N.W. and S.E. of the Mazaruni river at Turesi Falls extending to the Cuyuni and Essequibo rivers respectively.

150. The reasons for the selection of these areas were that they included very extensive auriferous areas in parts of which heavy concentrations occur, and that an economic and geological examination of the section between the Mazaruni and Cuyuni was essential to determine the probable working extent of the alluvial diamondiferous deposits which are known to extend northwards and southwards from the Mazaruni, but which have not yet been proved with the exception of limited areas on the Upper Puruni, the Potara River near Amatuk and on the Cuyuni river at Dukwarri. Most of the area is known to be exceptionally heavily forested whilst natural facilities exist for the development and distribution of hydro-electric power.

151. The survey party consisted of Mr. W. Cunningham who was appointed Officer in charge, Mr. F. U. Tronchin, Mr. W. T. Lord, Government Surveyors, with Mr. G. A. Phillips as Assistant.

152. The early part of the year was taken up in organising details and ordering instruments and equipment required in connection with the topographical section of the work.

153. Mr. Tronchin, who preceded the main survey party left Georgetown on 26th April and proceeded to Kamakusa and commenced cutting a line in a general northerly direction towards the Puruni river which was completed on the 1st September, and on his return from Puruni was joined on the 12th September by Mr. Cunningham and the other members of the party whose departure from Georgetown had been unavoidably delayed for some months by the illness of Mr. Cunningham.

154. Up to the end of the year a preliminary topographical survey with chain and compass and barometer had been carried out over 100 square miles of country situate on the northern bank of the Mazaruni between the Warima and Pakuseru rivers.

155. The whole of the 100 square miles covered by the survey was heavily forested and to obtain the requisite topographical detail entailed the cutting of 340 miles of traverse lines which were surveyed with compass, chain, and barometer.

156. In addition a reconnaissance line 55 miles long between the Mazaruni and Cuyuni rivers was cut and surveyed and 7½ miles of line were accurately levelled.

157. Mr. H. J. C. Conolly was appointed to take charge of the Mineralogical and Geological section of the work but had not assumed duty up to the end of the year.

RAILWAY RECONNAISSANCE SURVEYS.

158. *Kartabu-Turesi Line.*—(One of the alternative routes examined for a proposed railway to the Mazaruni diamond area). The trace for a proposed railway between Kartabu Point on the Cuyuni River and Turesi on the Mazaruni which at the close of 1923 had been taken to a point 21 miles from the starting point Kartabu, was continued and completed by Messrs. Roth, Cheong and Lord, Government Surveyors. The 63 miles of line located between Turesi and the point at which the survey was stopped in the previous year was surveyed by a precise theodolite traverse with trigonometrical heights along the main line, and in addition, a compass reconnaissance was carried out over 110 miles of branch lines on each side of the main traverse line.

159. *Rockstone-Turesi Line.*—As an alternative route for the proposed railway to Turesi a trace was surveyed by Mr. Cheong connecting Rockstone, the terminus of the existing Wismar-Rockstone railway with a trace located in 1923 between Bartika and Turesi via the Bartika-Kaburi Road. The total length of the connexion—between Rockstone and the point on the Bartika-Turesi trace at which the latter branches off westwards from the Bartika-Kaburi Road—was 18 miles. In connection with this route a hydrographic survey was carried out by the same officer of the Essequibo river in the vicinity of Rockstone and Gluck Island to locate suitable bridge crossings. This completed the series of road and railway reconnaissances made to determine the best route to the Mazaruni diamond fields.

160. A memorandum was prepared and published as Sessional Paper No. 51/24 summarising the various reports dealing with the surveys of the several proposed routes for a road or railway to the Mazaruni diamond fields, and comparing the relative merits of the respective routes.

161. Mr. M. P. Hastings, Government Surveyor, was engaged on making an accurate traverse and running a line of levels along the right bank of the Essequibo River from Boerasirie to Bartika. This Officer also carried out a hydrographic survey of that section of the Essequibo river between the southern point of Makouria Island and Bartika. The total area covered was 15 square miles.

162. *Departmental Surveys for Issue of Titles.*—One hundred and twenty-two surveys for issue of title covering an aggregate area of 2,934 acres were carried out during the year.

163. In addition 55 chain and compass surveys were made of woodcutting tracts covering an aggregate area of 26,089 acres.

164. *Miscellaneous Surveys.*—The following miscellaneous surveys were executed:—

(a) Of the locality at Ruimveldt where the shooting by the police took place in connexion with the riots which occurred in April.

(b) Of the portion of Pln. Amelia's Ward, Demerara River, to be acquired as a terminus for the Rupununi Cattle Trail.

(c) Of the obstructions and channels in the Mazaruni river between Bartika and Piamah Falls in connexion with a proposed air service to the Mazaruni diamond fields.

165. The survey of a dredging concession on the Tacouba Creek, a tributary of the Kurupung River in the Upper Mazaruni River was made by Mr. V. Roth, Warden, in addition to chain and compass surveys of various rivers and trails in the district. A number of claims were also verified.

166. *Private Surveys.*—One survey was carried out under the land Surveyors Ordinance, 1891, for the settlement of boundaries of private property.

RIVER REGULATIONS.

167. *River Navigation Regulations, 1924.*—The new River Navigation Regulations which came into force on the 1st July, 1924, comprise in consolidated form the Upper River Boat Regulations, 1912, the North Western District Boat Regulations, 1912, and the Lower River Boat Regulations, 1917. The principal changes introduced were as follows :—

Clause 8.—Prescribes the maximum width and depth of boats to be used on any river above the first falls:

Clauses 18-19.—Prescribe formula for computing the number of passengers a boat or vessel may be licensed to carry.

Clause 29 (3).—Provides that no candidate for examination as steersman or bowman shall be eligible to sit for examination who has not previously made 12 round trips over the section of river for which he is to be certificated, during states of the river known as high, medium and dry.

Clause 30 (4).—Provides that provisional certificates shall only be issued in cases of urgency or where certificated Captains, Steersmen or Bowmen are not available.

Clause 30 (5).—Emergency certificates only to be issued to persons who have served the Probationary period set out in Clause 29 (3). No emergency certificates to be issued for more than one voyage; and no second emergency certificate to be issued to the same person unless and until he has passed the examination.

Clause 33 (ix).—Provides for suspension or cancellation of certificate of Captain, Steersman or Bowman (a) who neglects to give care and attention to sick persons being conveyed in his boat and (b) who conveys in his boat a greater number of persons than it is licenced to carry.

Clause 33 (c).—Gives Officer power to require the holder of a certificate to present himself for re-examination.

Clause 34.—Provides that a Captain, Steersman or Bowman guilty of certain of the acts for which his certificate may be suspended or cancelled shall in addition be guilty of a breach of the Regulations.

Clause 42 (2).—Definition of persons deemed to be employed in a boat amplified so as to include all persons employed to "pull paddle."

Clause 43 (3).—Makes it an offence for any Steersman, Bowman or other person employed in a boat to refuse to proceed to destination, or to turn back, on account of breakdown of motor.

Clause 43 (4).—Makes it obligatory on the Bowman to pull paddle and give stroke to crew when under way and not actually engaged in guiding the boat with his bow paddle.

Clause 43 (4) and (5).—Prohibits stopping between Bartika and first falls or returning or permitting crew to return to Bartika after leaving Station.

Clause 44 (1).—Captain or Steersman to report at Government Station before permitting any person to land or communicate with boat on downward journey.

Clause 44 (2).—Provides that Steersman or Bowman shall not communicate with shore or allow any person to approach or board his boat until he has reported at Government Station at Bartika.

Part VIII. 53-60.—Provides for the conveyance of sick or injured persons to hospital and the recovery of expenses in connexion therewith.

168. Forty-two certificates as Steersmen and 185 certificates as Bowmen were issued to candidates who satisfied the examiners. 1,732 boats and their equipment were examined and certificates issued therefor during the year.

ABORIGINAL INDIANS.

169. The duties of Protector of Indians and Sub-Protectors were carried out by the Commissioner and the various District Officers of the Department.

170. The depôts in Georgetown and New Amsterdam for the accommodation of Indians when visiting these towns were made use of by 910 Indians as follows:—

		Males.	Females.
Georgetown	...	777	48
New Amsterdam	...	56	29
		833	77

171. Four prosecutions in behalf of Aboriginal Indians were instituted by one of the Sub-Protectors and convictions gained in each instance. The following is a list of these cases:—

Offence.	No. of cases.	District.
Wages due for work done	2	Demerara River.
Assault	2	do.

172. The number of individual permits issued for the employment of Indians totalled 856 as against 651 for 1923; but in addition many Aboriginal Indians were employed by persons and firms under bonds providing for the due payment of wages.

173. No palata was bled by Aboriginal Indians on the Reservations during the year.

EQUIPMENT AND CRAFT.

174. The instruments and other equipment for the survey and outdoor staff were maintained in good order.

175. The launches and boats belonging to the Department were kept repaired and painted.

STAFF.

176. Mr. L. S. Hohenkerk, Forestry Officer, left the Colony on the 15th February to attend the British Empire Exhibition as Assistant Representative for the Colony and was still on this duty at the close of the year.

177. Mr. W. H. McTurk, Chief Clerk, was offered and accepted an appointment as Land Officer and Surveyor, Gambia, and was granted leave from August to November prior to taking up his new appointment. Mr. H. P. Christiani, Drawing Office Superintendent, acted as Chief Clerk from August to the close of the year.

178. Mr. J. A. P. Bowhill, Drawing Office Superintendent, was granted an extension of his leave from January to July and retired from the Public Service on the 12th July at the expiration of his leave.

179. Mr. W. Cunningham, 1st Class Government Surveyor, was appointed Officer in charge of the Topographical and Economic Survey and was so employed at the end of the year.

180. Mr. E. L. Wickham, 1st Class Officer was on leave from May to August and retired from the Public Service on 31st December, 1924.

181. Mr. H. P. Christiani, Government Surveyor, was appointed as Drawing Office Superintendent as from 13th July, *vice* Mr. J. A. P. Bowhill, retired.

182. Mr. E. A. Haynes, 1st Class Government Surveyor, was on leave from May and resigned his appointment as from the 1st August, 1924.

183. Mr. E. E. Winter, Government Surveyor, was appointed Warden, Mazaruni District as from 1st January. He was on vacation leave from 1st January to 16th March and resigned his appointment as Government Surveyor and Warden, Mazaruni, as from 7th May.

184. Mr. A. A. W. Cooper was appointed to be a Government Surveyor at the maximum salary on one year's probation as from 1st September, 1924, *vice* Mr. H. P. Christiani, promoted.

185. Mr. J. Phang, Government Surveyor, was on leave from September and was still on leave at the close of the year. He was seconded for service in connection with the scheme for drainage of the Coastlands from the beginning of the year and resumed duty on the 14th April.

186. Mr. V. Roth, Government Surveyor was appointed to act as Warden, Mazaruni, from June and was so acting to the close of the year.

187. Mr. G. A. Pasea, 2nd Class Officer, was appointed to the 1st Class as from 1st January, 1924.

188. Mr. R. S. Kaufmann, 4th Class Officer, was appointed a Government Surveyor as from 1st January, 1924.

189. Mr. P. A. Bunbury, 5th Class Officer, was appointed to the 4th Class *vice* Mr. Kaufmann promoted as from 1st January.

190. Mr. A. Lee Own, Acting Supernumerary in the Drawing Office, was appointed a 5th Class Officer as from 1st January, *vice* Mr. Bunbury promoted.

191. Mr. C. A. Cole, Assistant Draughtsman, was on leave from February and resumed duty on 16th June.

192. Mr. C. G. Belmonte, 5th Class Officer, was on leave from November and was still on leave at the close of the year.

193. Mr. A. L. Greene was appointed to act as a Surveyor's Assistant from 10th October, *vice* Mr. F. A. D. Cleare seconded for duty with Messrs. Howard Humphreys & Son and was so acting to the close of the year.

194. Mr. F. A. D. Cleare, Surveyors' Assistant, was seconded for duty with Messrs. Howard Humphreys & Son during the year and was so employed to the close of the year.

195. Mr. A. G. La Fargue, Government Surveyor, was seconded for service with Messrs. Wild & Co. in connection with the Georgetown Improvement Scheme from March to September, 1924.

196. C. L. Ridley was appointed to act as a Government Surveyor from May and was so acting to the close of the year.

197. E. L. Melville, 5th Class Officer, was granted three months' leave from 1st March prior to his retirement from the Public Service at the end of May.

198. Mr. R. P. Young, 5th Class Officer, was seconded for duty in connexion with the British Empire Exhibition and left the Colony on 15th February. He resumed duty on the 14th October.

199. Miss N. Newsam, Acting Clerical Assistant, was appointed Clerical Assistant in the Public Health Department on 1st April, 1924.

200. Miss D. Craig was appointed to act as Clerical Assistant *vice* Miss N. Newsam and assumed duty on 1st May.

201. I have again to record appreciation of the work of the staff, and of their zeal and efficiency.

I have the honour to be,

Sir,

Your obedient Servant,

GEO. D. BAYLEY,
Commissioner of Lands and Mines.

The Honourable
THE COLONIAL SECRETARY.

COMMISSIONER OF LANDS AND MINES REPORT, 1924.

APPENDIX 1.

DEPARTMENT OF LANDS AND MINES.

Comparative Statement of Revenue collected for the years 1923 and 1924.

SOURCE WHENCE COLLECTED.	Year 1923.		Year 1924.	
III. INTERNAL REVENUE—				
3. Auction Duty	...	\$ 4 76	\$ 4 53	
5. Acreage Tax	...	17,630 02	17,114 97	
7. Duty on Transports, &c.	...	297 39	549 08	\$ 17,668 58-
V. FINES, FEES OF COURT, RE-IMBURSEMENTS, &c.—				
1. Fines and Seizures	...	100 10	169 44	
5. Boat Regulations	...	232 72	108 72	
22. Official Publications	...	196 82	210 21	
26. Affidavit Fees	...	1 00	...	488 37
VI. RENTS—				
2. Colony Lands—				
Pln. Triumph	...	900 80	954 82	
„ Thomas	...	8 00	4 00	
„ Bourda	...	73 00	73 00	
„ Christianburg and Wismar	...	491 26	598 37	
„ Windsor Forest	...	4,710 95	4,662 51	
„ La Jalousie	...	4,531 39	3,902 52	
„ Hague	...	2,869 47	4,141 67	
Lots, Potaro Landing	...	10 00	12 00	
Lot 64, Courantyne	...	24	24	
Mahaica Toll House	...	10 00	10 00	
Smyths Town, N/A., (Race Course)	...	5 00	5 00	
Onderneeming	...	80	80	
Bartica	8 00	
America Stelling	...	360 00	678 00	
Kalacoon	...	50 00	50 00	
Whim	...	11 00	11-00	
North-West District	...	11 25	23 00	
Pln. Best	
Plaisance	...	3 00	3 00	
Liberty Island	...	87 08	99 07	
Pln. Craig	...	714 44	740 23	
Lot 66, Courantyne	...	5 00	5 00	
Pln. Olonbrook	
Lot 67, Kingston	...	15 00	30 00	
Friendship	10 50	
Pouderoyen	3 00	16,005 78-
3. Crown Lands—				
Demerara Ice House	...	600 00	600 00	
Mud Lot, Charlestown	...	60 00	60 00	
Licences of Occupancy and Leases	...	15,866 74	16,752 04	
Georgetown Club	...	480 00	480 00	17,892 04-
VII. FORESTS AND MINES—				
(a) Forests—				
1. Fees	...	8,879 17	9,483 55	
2. Balata Licences	...	15,657 98	14,920 00	
3. Woodcutting Licences	...	8,540 41	8,525 71	
4. Permissions	...	1,938 24	1,418 29	
5. Royalty on Timber, etc.—				
Timber	
Shingles	
Cordwood	...	23,968 51	26,721 14	
Charcoal	
6. Royalty on Balata, etc.—				
Balata	...	22,723 24	24,724 32	
Do Indian	
Rubber	
7. Royalty, Miscellaneous—				
Sand, Gums, Shell, Mangrove Bark, Orchids, etc....	...	124 67	78 04	
8. Registration of Labourers	...	1,354 80	1,429 68	87,300 63-
(b) Mines—				
1. Fees	...	1,395 24	1,093 30	
2. Prospecting Licences	...	9,940 00	9 600 00	
3. Claim Licences, Gold	...	3,465 00	2,825 00	
4. Do. Precious Stones	...	28,489 30	31,095 00	
5. Mining Privileges	...	3,800 40	3,752 40	
6. Exclusive Permissions	...	3,981 65	1,752 44	
7. Mining Concessions	...	1,359 01	1,035 88	
8. Dredging Concessions	...	421 60	437 48	
9. Royalty on Gold	...	1,440 71	948 11	
Forward	..	64 292 91	62,539 61	139,356 40
		133,519 25		

ii.

APPENDIX 1—(CONTINUED).

Comparative Statement of Revenue collected for the years 1923 and 1924.

SOURCE WHEREOF COLLECTED.	Year 1923.		Year 1924.	
Brought forward ...	\$ 54,202 91	\$ 133,519 25	\$ 52,539 61	\$ 139,355 40
(b) <i>Mines</i> —Contd.				
10. Precious Stones—Fees, Alluvial Workings	...		...
Sale of Forfeited Gold and Diamonds	94 65		...	
11. Miscellaneous—Sale of Tablets	156 24		355 38	
12. Registration of Labourers	2,210 88		1,549 44	
13. Royalty on Bauxite	3,955 79		16,511 20	
14. Sale of Forfeited Claims	5 50		27 50	
15. Royalty on Diamonds	107,153 74	172,869 71	97,532 56	168,515 69
VIII. INTEREST, GENERAL	384 45	384 45	506 62	506 62
IX. MISCELLANEOUS—				
1. Fees, Private Surveys	26 40		16 67	
2. Sundries	1,752 10	1,778 50	3,728 07	3,744 74
X. SALE OF CROWN LANDS—				
Sale of Crown Lands	459 37	459 37	661 83	661 83
XI. SALE OF COLONY LANDS—				
Unity and Lancaster	40 00		20 00	
Clonbrook	70 00		50 00	
Triumph	...		...
Old Queen's College	...		...
Windsor Forest	...		...
Hague	40 00		...	
Huis't Dieren	...		5 00	
Kortberaad	...		...
Grove	...	150 00	...	75 00
XII. PREMIUMS ON GRANTS, LEASES, ETC.	...	...	16 00	16 00
Total Collected	...	\$ 309,161 28	...	\$ 312,875 28

APPENDIX 2.

Comparative Statement showing the empoldered and cultivated areas of Sugar Plantations on 30th September, 1923, and 30th September, 1924.

ON 30TH SEPTEMBER, 1923.

County.	Canes.	Mixed Cultivation.	Uncultivated.	Total Empoldered.
	Eng. Acres.	Eng. Acres.	Eng. Acres.	Eng. Acres.
Demerara	33,161	7,270	45,586	86,017
Essequibo	2,449	4,303	11,972	18,724
Berbice	19,511	6,490	31,447	57,448
Total	55,121	18,063	89,005	162,189

ON 30TH SEPTEMBER, 1924.

County.	Canes.	Mixed Cultivation.	Uncultivated.	Total Empoldered.
	Eng. Acres.	Eng. Acres.	Eng. Acres.	Eng. Acres.
Demerara	33,540	7,126	45,352	86,018
Essequibo	3,013	2,305	10,747	16,065
Berbice	19,318	6,563	31,838	57,719
Total	55,871	15,994	87,937	159,802

APPENDIX 3.

Total cultivated and empoldered areas of Sugar Plantations during the last five years, at 30th September in each year.

	Eng. Acres Canes.	Eng. Acres Empoldered.
1918	72,002	168,142
1919	68,756	166,749
1920	69,954	167,080
1921	66,545	168,002
1922	59,032	163,413
1923	55,121	162,189
1924	55,871	159,802

APPENDIX 5.

Return of Articles Declared from Licensed Crown Lands and the Royalty paid thereon.

ARTICLES.	1923.		1924.	
		Royalty.		Royalty.
Greenheart ... ..c.ft. ...	381,311	\$ 11,489 33	510,816	\$ 15,324 48
Hardwood (other than Greenheart and Mora)	6,034	120 68	52,885	657 70
Mora	26,936	540 72	38,296	765 92
Crabwood	74,723	747 23	56,512	565 12
Soft Woods	12,466	124 65	9,638	96 38
Firewood ... ..tons ...	61,293	5,113 11	57,582	4,606 61
Charcoal ... ..lbs. ...	10,749,475	5,383 62	8,139,751	4,130 20
Shingles ... ..No. ...	533,600	264 02	2,476,700	247 67
Paling Staves ... ..No. ...	76,855	94 30	60,573	72 31
Boards, Planks and Scantling ... ..feet ...	9,980	6 35	75,699	88 30
Vat Staves	16,968	18 66	76,622	76 74
Paling Posts	93,218	92 57	103,981	104 38
Hardwood, Beams and Spars	34,569	11 75	81,876	30 48
Wattles, Shovel Sticks, &c. ... ..No. ...	4,960	2 76	8,537	4 77
Greenheart and Mangrove Bark ... ..lbs. ...	528,251	106 74	231,490	57 90
Manicole ... ..feet ...	5,450	8 74	50	08
Total Royalty on Timber, etc., from Woodcutting tracts ...	...	\$ 24,075 25	...	\$ 26,779 04
Balata ... ..lbs. ...	1,136,162	22,723 24	1,236,211	24,724 22
Rubber ... ..	...	...	...	...
Gums, &c.	2-0	2 80	762	7 62
Orchids ... ..No. ...	52	2 60	...	...
Total Royalty from all Forest Products ...	...	\$ 46,803 89	...	\$ 51,510 88

APPENDIX 6.

Statement showing Quantities and Values of Forest Products Exported and Imported during the years 1923 and 1924.

ARTICLES.		1923.		1924.	
		Quantity.	Value.	Quantity.	Value.
<i>Exports.</i>					
Timber, rough logs—					
Greenheart ... ..cub. ft. ...	150,896	\$ 117,835	168,257	\$ 124,664	
B.G. Mahogany or Crabwood ... ..	...	...	...	...
Other kinds except Cedar and Wallaba	1,272	637	197	163	
Mora ... ..	...	...	...	...
Lumber and Scantling, rough—					
Greenheart ... ..feet ...	111,433	12,320	142,846	17,220	
B.G. Mahogany	265	19	5,073	327	
Mora	516	30	1,297	114	
Other kinds except Cedar and Wallaba	1,847	135	31,647	1,904	
Wood and Wood Products—					
Shingles ... ..number ...	1,373,750	10,831	1,278,200	8,661	
Charcoal ... ..tons ...	2,631	46,613	2,268	38,763	
Firewood	7,674	24,779	6,477	19,569	
Railway Sleepers ... ..number ...	8,916	5,598	39,238	31,519	
Bark for tanning ... ..lbs. ...	...	...	...	...
Unenumerated, casks, tubs, bateaux, paddles, posts, &c. ...	...	4,964	...	5,710
Value of Timber and Wood Products exported ...	...	\$ 223,261	...	\$ 309,851
Balata ... ..lbs. ...	1,026,368	628 509	1,370,212	822,162	
Gums	2 588	195	708	72	
Value of Balata and Gums exported ...	...	\$ 628,704	...	\$ 822,234
Total value of forest products exported ...	...	\$ 851,965	...	\$ 1,032,085
<i>Imports.</i>					
Lumber, dressed ... ..feet ...	41,376	3,260	124,239	6,609	
Do. undressed	3,267,479	206,705	3,777,177	228,796	
Shooks ... ..packs ...	...	...	...	...
Staves and Headings ... ..number ...	...	...	...	...
Total value of forest products imported ...	...	\$ 209,965	...	\$ 235,405

APPENDIX 7.

Statement showing the amount of Gold obtained in the Colony during the below-mentioned years, with the value of same.

Years.	GOLD.			VALUE.				
	Ozs.	dwts.	grs.	\$	c.	£	s.	d.
1884 ...	250	0	0	4,375	00	911	9	2
1885 ...	939	0	0	16,432	50	3,423	8	9
1886 ...	6,518	1	12	114,066	32	23,763	16	4
1887 ...	10,986	14	0	192,267	25	40,055	13	6
1888-1889 ...	20,216	1	8	353,781	17	73,704	8	2
1889-1890 ...	32,332	16	5	565,824	19	117,880	0	9
1890-1891 ...	66,864	4	21	1,170,124	27	243,775	17	9
1891-1892 ...	110,555	12	5	1,934,723	19	403,067	6	7
1892-1893 ...	134,124	7	23	2,347,176	97	488,995	4	0
1893-1894 ...	138,527	16	14	2,424,237	01	505,049	7	6
1894-1895 ...	132,994	15	20	2,327,408	86	484,876	16	11
1895-1896 ...	121,285	5	7	2,122,492	13	442,185	17	2
1896-1897 ...	127,479	8	4	2,230,889	65	464,768	13	6
1897-1898 ...	121,490	15	20	2,126,088	86	442,935	3	7
1898-1899 ...	113,114	3	6	1,979,497	85	412,395	7	8
1899-1900 ...	112,789	10	20	1,973,816	98	411,211	17	5
1900-1901 ...	114,102	1	14	1,996,786	36	415,997	3	2
1901-1902 ...	101,332	3	22	1,773,313	43	369,440	5	11
1902-1903 ...	104,526	10	14	1,829,214	26	381,086	6	1
1903-1904 ...	90,336	1	22	1,580,881	68	329,350	7	0
1904-1905 ...	95,864	4	9	1,677,623	83	349,504	19	3
1905-1906 ...	94,363	7	5	1,651,358	81	344,033	1	8
1906-1907 ...	85,504	15	18	1,496,333	78	311,736	4	1
1907-1908 ...	67,209	10	04	1,176,166	40	245,034	13	4
1908-1909 ...	73,654	12	06	1,288,955	72	268,532	8	10
1909-1910 ...	64,829	19	19	1,134,524	82	236,359	6	9
1910-1911 ...	54,988	15	18	962,303	78	200,479	19	1
1911-1912 ...	50,273	14	21	879,790	51	183,289	13	9
1912-1913 ...	51,765	8	0	880,011	80	183,335	15	10
1913-1914 ...	82,706	6	3	1,367,626	41	284,922	2	4
1914-1915 ...	64,982	9	13	1,141,092	70	237,727	12	11
April to Dec., 1915	39,793	10	03	698,765	08	145,577	18	8
1916 ...	37,129	6	21	651,712	08	135,773	7	0
1917 ...	29,538	16	12	518,480	23	108,016	14	3
1918 ...	24,546	18	02	430,862	25	89,762	19	4
1919 ...	16,216	15	05	287,044	80	59,801	0	0
1920 ...	12,692	03	00	224,657	05	46,803	11	0
1921 ...	12,828	10	02	281,671	14	58,681	9	9
1922 ...	10,876	11	05	204,542	62	42,613	0	11
1923 ...	7,262	02	03	136,131	00	28,361	0	0
1924 ...	7,187	02	17	129,314	39	26,940	9	11½
Total ...	2,644,980	11	15	\$ 46,146,236	13	£ 9,642,161	19	7½

APPENDIX 8.

Statement of Gold obtained from the below-mentioned Districts during the years 1923 and 1924.

	ozs.	dwts.	grs.	1923.			1924.		
				ozs.	dwts.	grs.	ozs.	dwts.	grs.
Barima	665	04	13	771	04	21			
Barama	247	10	08	88	05	11			
Waini	...	...	...	3	04	06			
Cuyuni	14	13	18	48	11	00			
Groete Creek	...	...	...	...	...	...
Puruni	35	09	00	94	13	12			
Mazaruni	722	14	01	147	12	01			
Esequeobo	2,731	17	05	3,343	11	01			
Potaro	2,844	01	18	2,690	00	13			
Demerara	...	...	...	...	...	...
Berbice	...	11	12	...	...	...
Total	7,262	02	03	7,187	02	17			

APPENDIX 9.

Statement of Gold obtained by Quartz Milling declared during the below mentioned years.

Name of Company.	Situation of Mine.	YEARLY QUANTITIES																Total. Ozs.									
		1894-95 Ozs.	1895-96 Ozs.	1896-97 Ozs.	1897-98 Ozs.	1898-99 Ozs.	1899-1900 Ozs.	1900-01 *Ozs.	1901-02 Ozs.	1902-03 Ozs.	1903-04 Ozs.	1904-05 Ozs.	1905-06 Ozs.	1906-07 Ozs.	1907-08 Ozs.	1908-09 Ozs.	1909-10 Ozs.		1910-11 Ozs.	1911-12 Ozs.	1912-13 Ozs.	1913-14 Ozs.	1914-15 Ozs.	Apr-Dec 1915 Ozs.	1916 Ozs.	1917 Ozs.	
Kanaimapoo Gold Mining Co., afterward Gold Quartz Syndicate	Kanaimapoo, right bank Demerara river	621	44	22	51	7	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	756
Barima Gold Mining Co., now British Guiana Gold Mines, Ltd.	Barima Mine, Arakaka creek, right bank, Barima river	...	...	6221	1575	...	...	...	...	...	...	...	3,719	3,056	...	1574	394	...	...	...	...	...	...	...	...	...	16,539
Winter Gold Mining Co., now British Guiana Gold Mines, Ltd.	Winter Mine, Arakaka creek, right bank, Barima river	...	...	...	489	1702	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2,191
Gates Syndicate	Arawatabaru, right bank Barima	...	...	...	986	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	986
Sir Walter Raleigh Gold Mining Co.	Right bank Barima river near Arakaka	...	...	79	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	79
Barr-Robertson Syndicate, afterward Sealey Mine, now M. H. Eugelen.	Right bank Barima river at Arakaka Landing	...	...	373	1524	146	77	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2,120
British Guiana (Puruni) Gold Concessions Co., Ltd.	Peters Mine, right bank Puruni river	...	...	...	...	...	...	3664	9501	5815	9,568	10,469	...	...	...	...	...	...	...	...	...	...	108	1,108	...	140,228	
Aremu Mining Co., Ltd.	Aremu Mine, right bank Big Aremu creek, right bank Cuyuni river	...	...	...	...	...	...	...	...	...	...	...	101	6387	...	43	...	...	...	...	...	...	...	...	...	...	6,581
Totals		621	44	6695	4625	1866	88	3664	9501	5815	13,287	13,626	6387	1574	487	...	...	...	...	...	...	...	108	1,108	...	69,430	

*Note.—During the years 1900-01, 1901-02, 1902-03, 1903-04, 1904-05, 1917, 1918, 1919, 1920, 1921 and 1922 no Gold was obtained from Milling.
† Of this amount 894 ozs. of Gold is the product of Concentrates shipped to the United States of America.

APPENDIX 10.

Statement of Gold obtained by Dredging declared during the below mentioned years.

Name of Company.	Situation of Concession.	YEARLY QUANTITIES.																				Total Ozs.			
		1902-03 Ozs.	1903-04 Ozs.	1904-05 Ozs.	1905-06 Ozs.	1906-07 Ozs.	1907-08 Ozs.	1908-09 Ozs.	1909-10 Ozs.	1910-11 Ozs.	1911-12 Ozs.	1912-13 Ozs.	1913-14 Ozs.	1914-15 Ozs.	1915 Apr-Dec Ozs.	1916 Ozs.	1917 Ozs.	1918 Ozs.	1919 Ozs.	1920 Ozs.	1921 Ozs.		1922 Ozs.	1923 Ozs.	1924 Ozs.
British Guiana Dredging Syndicate	Barima River from Wakiparu Creek to Eclipse Falls ...	130	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	130
Omai Gold Mining Co. afterwards Dem. Exploration Synd., Ltd.	Gilt Creek, left bank Omai creek, left bank Essequio River ...	...	43	1233	687	948	1,481	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4,392
Guiana Gold Company, Ltd.	Konawaruk River, left bank Essequibo River ...	...	...	...	...	613	2,652	3,868	4,963	5,706	7,222	9,561	7,025	8,170	6,942	8,075	7,290	4,289	2,904	3,359	4,650	1,354	668	654	89,665
Minnehaha Development Co., Ltd.	Minnehaha Creek, Konawaruk, Essequibo River ...	...	...	...	...	...	...	...	98	1,588	2,347	2,472	3,079	1,912	1,177	1,385	...	950	239	...	...	1,055	1,783	2,574	20,660
Do.	Mahdia Creek, right bank, Potaro River ...	...	...	...	...	...	...	...	...	...	...	...	...	2,528	1,871	2,507	3,094	2,317	2,094	2,579	2,120	2,904	2,012	2,064	26,088
	Totals ...	130	43	1233	687	1,561	4,133	3,868	4,461	7,294	9,569	12,033	10,104	12,608	9,990	11,967	10,384	7,556	5,237	6,238	6,770	5,313	4,463	5,292	140,935

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APPENDIX 11.

Statement of Gold obtained by Hydraulicing declared during the below mentioned years.

Name of Company.	Situation of Concession.	YEARLY QUANTITIES.										Total Ozs.		
		1902-03	1903-04	1904-05	1905-06	1906-07	1907-08	1908-09	1909-10	1910-11	1911-12		1912-13	1913-14 Ozs.
Omai Gold Mining Company, afterwards Demerara Exploration Syndicate, Limited.	Hills in vicinity of Gilt Creek, left bank Omai Creek, left bank Essequibo River ...	2,255	4,524	13,075	7,269	...	...	...	...	...	...	...	...	27,123
Tassawini Mining Company	Hoorie Creek, left bank Barama River ...	...	...	...	...	74	950	6,192	2,710	252	823	243	11,244	
	Totals ...	2,255	4,524	13,075	7,269	74	950	6,192	2,710	252	823	243	38,367	

APPENDIX 12.

Comparative Statement showing the Number and Weight of Diamonds declared at the Department of Lands and Mines during the following Years :—

	Number.	Weight (Carats).	£	s.	d.
1901-1902	91,206	8,227	7,712	18	3
1902-1903	163,680	10,447	9,794	1	3
1903-1904	164,315	10,742	10,070	12	6
1904-1905	175,400	10,619	9,955	6	3
1905-1906	65,752	4,097	3,840	18	9
1906-1907	65,903	4,661	4,423	11	10½
1907-1908	29,007	2,122	1,988	19	1½
1908-1909	63,161	5,618	9,268	7	5
1909-1910	85,537	7,181	9,574	13	4
1910-1911	26,467	3,035	6,442	3	5
1911-1912	78,683	7,648	11,550	11	10
1912-1913	62,624	6,099	9,212	0	7½
1913-1914	93,752	11,119	21,178	10	0
1914-1915	100,522	13,716	28,576	0	10½
April to December—1915	19,461	3,678	7,663	0	5
1916	93,782	16,409	34,184	8	9½
1917	102,957	17,908	37,308	6	8
1918	77,819	14,196	29,575	0	0
1919	84,466	16,706½	95,710	16	8
1920	234,456	39,362½	281,535	18	0½
1921	507,200	102,603½	329,847	3	8½
1922	816,857	163,640½	825,285	4	2
1923	1,141,425	214,474½	1,033,014	3	4
1924	1,055,425	185,585½	858,322	19	5
Total	5,399,857	879,895½	£3 676,035	16	8½

APPENDIX 13.

Comparative Statement showing the number of Concessions, Permissions, Licences and Privileges issued under the Mining Regulations and Mineral Oil Regulations during the years 1923 and 1924.

Title.	Purpose.	1923 Number.	1924 Number.
Concessions	Gold, Silver and Valuable Minerals ... ..	...	...
Exclusive Permissions	Gold, Silver and Valuable Minerals	6	3
do.	Gold, Silver and Valuable Minerals and Precious Stones ... ..	...	2
Claim Licences	Gold	58	97
do.	Precious Stones	605	987
do.	Gold and Precious Stones	14	8
Prospecting Licences	Gold and Precious Stones	1,988	1,920
Mining Privileges... ..	Gold and Precious Stones	15,835	15,635
Exploration Licences	Mineral Oil	2	2

APPENDIX 14.

Statement of Labourers registered during the years 1923 and 1924.

Station.	County.	1923.				1924.			
		General.	Balata.	Mining.	Total Numbers.	General.	Balata.	Mining.	Total Numbers.
Georgetown ...	Demerara.	1,952	1,978	6,346	10,276	1,994	1,971	3,792	7,757
Christianburg, D.R.)		...	...	...	...	2	6	...	8
New Amsterdam ...	Berbice.	326	1,196	65	1,587	366	1,459	79	1,844
Springlands		...	133	...	133	1	118	...	119
Kamakua	Essequibo.	...	...	...	...	...	...	10	10
Potaro		...	...	...	...	...	...	71	71
Bartica		...	...	...	...	1,995	...	444	2,439
Morawhanna		Do.	...	23	26	49	...	11	10	21
Arakaka	N. W. District	...	33	25	58	...	...	...	...
Totals ...	...	2,278	3,363	6,462	12,103	4,358	3,565	4,346	12,269

APPENDIX 15.

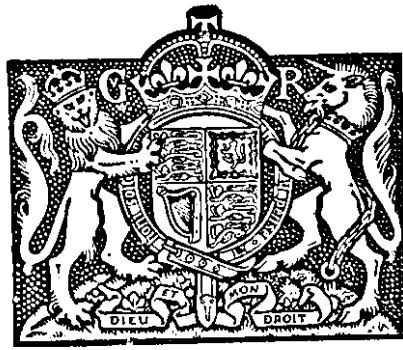
Statement of Deaths occurring in the Gold and Diamond Fields recorded in the Department of Lands and Mines during the last six Years.

YEARS.	CAUSE OF DEATH.							TOTAL
	Ordinary Causes.	Drowned.	Cause of Death unknown.	Accidental (other than Drowning.)	Suicide.	Murder.		
1919 ...	13	...	...	...	...	...	13
1920 ...	9	13	...	...	...	...	22
1921 ...	6	...	...	...	...	...	6
1922 ...	93	21	1	5	3	...	123	
1923 ...	217	53	2	8	...	1	281	
1924 ...	235	27	3	4	...	...	269

APPENDIX 16.

Return of Boats and Passengers leaving Bartica monthly for the Mazaruni and Puruni Districts during the year 1924.

Month.	Mazaruni.		Puruni.		Total Departures.	
	Boats	Passengers.	Boats.	Passengers.	Boats.	Passengers.
January ...	137	3,296	6	128	143	3,424
February ...	119	2,795	4	100	123	2,895
March ...	47	1,097	2	54	49	1,151
April ...	25	575	...	...	25	575
May ...	64	1,357	...	...	64	1,357
June ...	72	1,703	5	120	77	1,823
July ...	81	1,974	2	50	83	2,024
August ...	91	2,109	8	139	99	2,248
September ...	88	2,143	5	121	93	2,264
October ...	62	1,417	3	62	65	1,479
November ...	58	1,258	5	86	63	1,344
December ...	39	841	3	65	42	883



C.S.O. No. 3220/26.



British Guiana.

3 3

REPORT

ON THE

LANDS AND MINES DEPARTMENT,

FOR THE YEAR

1925.

Printed by the Authority of His Excellency the Governor.

GEORGETOWN, DEMERARA :

"THE ARGOSY" COMPANY, LIMITED, PRINTERS TO THE GOVERNMENT OF BRITISH GUIANA.

1926.

No. 13,020.

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DEPARTMENT OF LANDS AND MINES,

GEORGETOWN, DEMBEARA,

18th June, 1926.

SIR,

I have the honour to submit the following report on the administration of this Department during the year ended 31st December, 1925.

2. A comparative statement of revenue collected during the years 1924 and 1925 is given in Appendix 1 hereto, from which it will be seen that the total revenue collected in 1925 was \$324,990.18 as against a total of \$312,875.28 collected in 1924; an aggregate increase of \$12,114.90.

3. Briefly summarised the principal increases and decreases and their causes are as follows:—

INCREASES.

Head.	Amount.	Cause.
Acreage Tax	\$ 274 52	Increased area under cane cultivation.
Fines and Seizures	978 30	Increase in number of seizures.
Colony Lands—Rents	1,500 00	Due to collection of arrears of rents.
Crown Lands—Rents	4,154 94	Do. do. do.
Fees, Forests	1,412 56	Increase in number of applications filed for titles under the Crown Lands Regulations.
Permissions	307 34	Increase in number of Cattle Grazing Permissions.
Royalty on Timber	9,917 65	Due to increased output of timber and operation of minimum royalty clause.
Colony Lands—Sales	2,540 00	Increase due to sale of piece of land at Broad Street to Sproutons, Ltd., and lots at Mabaruma Hill Township, N.W.D.
Crown Lands—Sales	189 79	Increase in number of applications for Conditional Purchase Grants.
Claim Licenses, Precious Stones...	2,576 00	Increase in number of claims in existence.
Royalty on Gold	213 83	Increased activity.
Miscellaneous Mines	1,514 81	Due to $\frac{1}{2}$ acre permissions for business purposes in connexion with mining being issued under the Mining Regulations, instead of the Crown Lands Regulations as heretofore.
DECREASES.		
Licences, Balata...	3,560 00	Due to 1924 figures being inflated by back rents of 1923 brought to account in 1924.
Licences, Prospecting	1,110 00	Decrease in number of persons engaged in prospecting.
Mining Privileges	479 28	Decrease in number of tributors engaged in gold and diamond industry. Corresponding increase in registered labourers.
Mining Concessions	283 48	Rent due in 1925 not paid until 1926.
Royalty on Bauxite	276 50	Due to reduced output from Crown Lands.
Royalty on Diamonds	5,115 08	Decrease in production due to abnormal weather conditions.
Miscellaneous.—Sundries	2,528 60	Variable item—1924 figures inflated by crediting to this head debts due to Government Canteen, Rupununi District, collected by Lands and Mines Department after taking over the administration of the District when District Commissionership was abolished.

4. *Expenditure.*—The following table gives the expenditure during 1925 under the various votes and shows the savings and excesses in each case:—

	Description.	Total voted 1925.	Total Expenditure 1925.	Excess.	Saving.
VIII.—DEPARTMENT OF LANDS & MINES—					
1-18	Fixed Establishment	\$ 67,474 00	\$ 65,030 92	...	\$ 3,380 08
	Service Allowance	937 00			
19-33	Unfixed Establishment	27,230 00	26,209 08	...	1,010 92
34	Travelling, Labour and Materials for Survey	31,186 00	17,920 06	...	13,265 95
35	Stationery	1,250 00	793 15	...	456 85
36	Miscellaneous	240 00	172 32	...	67 68
37	Instruments and Drawing Materials	500 00	171 71	...	328 29
38	Upkeep and Purchase of Boats, etc.	1,800 00	1,051 32	...	748 68
39	Office Rent	300 00	300 00	...	
40	Uniforms for Indian Captains, Messengers, etc.	350 00	223 14	...	126 86
41	Freight, Insurance, etc.	785 00	879 99	\$ 94 99	
42	Risk Allowance Cashier	84 00	84 00	...	
43	Purchase of Metal Tablets	360 00		...	360 00
43a	Conveying sick persons in Mazaruni to hospital.	100 00	73 88	...	26 12
44	Plns. Windsor Forest and La Jalouse	6,900 00	5,412 27	...	1,487 73
45	Pln. Hague	3,522 00	3,294 00	...	228 00
46	Pln. Christiansburg	26 00	26 06	...	96
47	Pln. Craig Irrigation Scheme (Maintenance)	1,800 00	1,799 86	...	14
48	Water Rates Leper Asylum, Police Station and Post Office areas at Mahalea	5 00	3 38	...	1 62
49	Pln. Triumph	70 00	89 33	19 33	
50	Pln. Huis't Dieren	20 00	46 60	26 60	
51	Pln. Best	27 00	27 00	...	
52	Pln. Clonbrook	40 00	31 20	...	8 80
53	Plns. Unity and Lancaster	25 00	23 50	...	\$ 50
54	Morawhanna	375 00	374 10	...	90
55	Ordnance Fort Lands, Berbice	110 00	93 60	...	16 40
56	Bartica	1,025 00	593 71	...	431 29
57	Miscellaneous Expenditure in connection with Crown and Colony Lands	100 00	49 50	...	50 50
58	Topographical and Economic Survey of country situate between the Kasequibo, Mazaruni and Ouyuni Rivers	20,000 00	20,152 15	9,152 15	...
59	Printing Topographical and Geological Maps of the Colony and Topographical Maps of the coastlands	3,000 00	1,218 67	...	1 781 33
60	Purchase of Diamond Scale	150 00	150 00	...	
		\$ 169,781 00	\$ 155,262 38	\$ 9,268 47	\$ 23,785 09

5. It will be seen that there was a net saving of \$14,518.62 on the total amount voted for 1925.

EXCESSES.

6. Briefly summarised the causes of the principal excesses and savings are as follows:—

7. *Freight and Insurance.*—The excess of \$94.99 was due to unexpectedly high cost of conveyance of supplies to the Rapununi and Mazaruni districts.

8. *Plantation Triumph.*—The excess of \$19.33 was due to increase of the Local Authority's Assessment on Government owned lots.

9. *Topographical Survey.*—The excess of \$9,152.15 was due to the decision to put more surveyors in the field than had been contemplated, when the estimate for 1925 was drawn up, so as to expedite the topographical and geological survey work in the Mazaruni diamond fields, such excess to be covered by savings on the funds available for routine surveys. This was done in consequence of the urgent necessity for determining the probable extent and life of the diamondiferous deposits in that district as affecting the question of railway communication.

SAVINGS.

10. *Fixed Establishment.*—The savings under this head were due mainly to vacancies in the posts of Chief Clerk and Government Surveyors.

11. *Unfixed Establishment.*—Principally due to savings under Boats' Crews by use of launches and outboard motors.

12. *Travelling Labour and Materials for Surveys.*—Due to several of the permanent survey staff being engaged on the Topographical and Economic Survey and consequent reduction of routine work.

13. *Stationery.*—Stock in hand at close of 1924 enabled reduction in expenditure 1925.

14. *Instruments and Drawing Materials.*—Orders for supplies deferred to 1926.

15. *Upkeep and Purchase of Boats and Launches.*—Due to boats and launches used on Topographical Survey being maintained from the Special Vote for that Survey.

16. *Uniforms for Indian Captains, Messengers, etc.*—Uniforms were not issued to Indian Captains in 1925, the purchase of these and of helmets for Messengers, etc., being deferred to 1926.

17. *Purchase of Metal Tablets.*—Orders for tablets deferred until 1926.

18. *Plns. Windsor Forest and La Jalousie.*—Economies effected on maintenance of trenches, dams and roads due to prolonged dry weather.

19. *Plantation Hague.*—Economies effected on maintenance of trenches, dams, and roads due to prolonged dry weather.

20. *Bartica.*—Reduction in rate of assessment on Government property.

21. *Printing Topographical and Geological Maps of the Colony and Topographical Maps of the Coastlands.*—Only part of order for printing Maps fulfilled in 1925—balance supplied and paid for in 1926.

ACREAGE RETURNS.

22. *Sugar Estates.*—The area under Sugar Cane cultivation at the 30th September, 1925, as given by the Acreage Tax returns furnished to this Department by the Proprietors under Ordinance 23 of 1898 was 56,700 acres, an increase of 829 acres compared with the figures furnished for the same period in 1924. The figures for the three counties and a comparative statement for the past five years are given in Appendices 2 and 3.

23. The areas under mixed cultivation on sugar estates at the 30th September, 1925, as compared with the figures for 1924 according to the same returns were as follows :—

	1924	1925.
Rice	9,145 acres.	9,311 acres.
Coconuts	4,070 "	3,865 "
Rubber	638 "	506 "
Rubber and Limes mixed	210 "	210 "
Limes	123 "	123 "
Coffee	32 "	32 "
Plantains and rice mixed ... ..	...	...
Plantains and general cultivation	1,776 "	2,187 "
	<hr/> 15,994 acra.	<hr/> 16,234 acres.

24. *Rice.*—The total area under rice cultivation throughout the Colony in 1925 is given by the Department of Science and Agriculture as 29,333 acres against 29,406 acres in 1924.

CROWN LANDS.

AGRICULTURE, GRAZING, ETC.

25. A comparative statement giving the number and area of Grants, Leases, Licences and Permissions issued, renewed and extended during the years 1924 and 1925 is attached as Appendix 4.

26. *Grants for Agricultural Purposes.*—There were 14 Conditional Grants by Purchase issued during the year for an aggregate area of 109 acres. This is a decrease of 56 Grants totalling 406 acres as compared with 1924. Two Free Grants were issued aggregating 3½ acres—one for a burial ground at Bartica and the other for Church purposes in the Rupununi district.

27. *Leases for Agricultural Purposes.*—137 Leases were issued in 1925 for an aggregate area of 2,973 acres, an increase of 822 acres over 1924.

28. *Cattle-Grazing Leases.*—No Leases were issued in 1925, nor were any issued the previous year.

29. *Licences of Occupancy.*—Ten Licences were issued in 1925 for an aggregate area of 8,537 acres, an increase of 6,804 acres over 1924.

30. *Cattle-Grazing Permissions.*—Five Grazing Permissions were issued in 1925 for an aggregate area of 33,390 acres, a decrease of 33,605 acres as compared with 1924. Fourteen Cattle Grazing Permissions were renewed over an aggregate area of 408,040 acres.

31. *Permissions to occupy Crown Lands for Business, &c., Purposes.*—No new Permissions were issued for this purpose under the Crown Lands Regulations during 1925, such Permissions being now issued under the Mining Regulations in respect of areas in Mining Districts; but 100 Permissions in respect of areas other than Mining Districts were renewed during the year.

32. *Quarrying Licences.*—No Licences to quarry were issued during 1925, nor were any issued in 1924.

33. The total quantity of stone quarried at the Government quarry at Seba was 24,829 tons.

34. No stone was quarried at the Penal Settlement during the year.

35. No accidents from quarrying operations were reported during the year.

36. *Inspection of tracts held under conditional titles.*—The number of tracts inspected during the year totalled 271, covering an aggregate of 2,203 acres. Of this area 524 acres were found to be under cultivation or otherwise beneficially occupied. Of the number inspected 116 tracts were found to be either completely abandoned or in such a state as to indicate that there was no real likelihood of the holders making beneficial use of the tracts notwithstanding the warnings previously served, and the titles were consequently cancelled. The aggregate area of the tracts cancelled was 106.2 acres, or about 4.82 per cent. of the area inspected.

37. The proportion of tracts held under conditional titles which were actually inspected was remarkably small owing to the inadequacy of the existing staff to cope with this work.

38. At the end of 1925 the total area held under conditional titles such as Leases and Licences of Occupancy was 2,862,676 acres. This total includes the area taken out under Cattle Grazing Leases and Licences, but not the extensive areas held under Cattle Grazing Permissions on the Abary, Berbice, and Rupununi Savannahs. The area held under Grants of Crown Land to the end of 1925 aggregates 739,649 acres. This gives a grand total of 3,602,325 acres alienated.

39. By arrangement with the Director of Science and Agriculture the inspections of agricultural tracts in the North West District are carried out by the resident Agricultural Instructor and this arrangement has, by courtesy of Sir John Harrison, since been extended to the Pomeroy and Moruca Districts.

FOREST AND FOREST PRODUCTS.

40. *Leases*.—No Leases for timber cutting were issued during 1925, and the number remaining in existence at the close of the year was the same as in 1924, *i.e.*, 6 Leases covering an aggregate area of 108,129 acres.

41. *Licences*.—There were 241 Woodcutting Licences in existence at the 31st December, 1925, covering an aggregate area of 176,942 acres, as against 255 Licences comprising an aggregate area of 163,633 acres in 1924. Of the area held under Woodcutting Licences at 31st December, 1925, 21 Licences covering an aggregate area of 23,247 acres were issued during the year and 220 Licences already in existence covering an aggregate area of 153,695 acres were renewed for a further period. In addition to this, there were three Licences issued for the collection of Mangrove bark and two Licences already in existence were renewed, the total number of Licences being 5 with an aggregate area of 8,960 acres at the 31st December, 1925, as against 125,038 acres in 1924.

42. *Permissions*.—Eight new Permissions for the construction and use of cart paths across Crown Land outside licensed areas were issued during the year, and 6 Permissions already in existence were renewed. The numbers for 1924 were 9 and 12 respectively.

43. Fifteen new Permissions were issued for depôts for storage of timber, charcoal, &c., on Crown Land outside licensed areas, and 14 were renewed. The numbers for 1924 were 15 and 17 respectively.

44. *Balata Licences*.—109 Licences were issued during the year of which 93 were re-issues in respect of areas already licensed.

45. *Timber and Timber Products*.—Details of the quantity of these and other forest products declared as having been removed from Crown Land during 1924 and 1925, together with the amounts of royalty collected thereon are given in Appendix 5. From this it will be seen that the quantity of Greenheart declared totalled 725,670 cubic feet, an increase of 214,854 cubic feet or 42 per cent. on the production for 1924. A statement shewing the quantity and values of Forest Products exported is given in Appendix 6.

46. During the year this Department examined, branded and certified as true to type and free from serious defects over 105,700 cubic feet of Greenheart for export.

47. *Hardwood other than Greenheart and Mora*.—The quantity on which royalty was declared totalled 3,618 cubic feet as against 32,885 cubic feet during 1924—a decrease of 29,267 cubic feet or 8.90 per cent.

48. *Mora*.—The quantity declared totalled 67,647 cubic feet as against 38,296 cubic feet—an increase of 29,351 cubic feet or 76.6 per cent.

49. *Crabwood and other Soft Woods*.—The quantity of Crabwood (the local substitute for Mahogany) declared during the year was 150,964 cubic feet, an increase of 94,452 cubic feet over last year's production. Of other soft woods the total declared was 14,262 cubic feet, an increase of 4,894 cubic feet.

50. Other wood products show the following increases:—Shingles 1,050,013 or 54 per cent. Boards, Planks, and Scantlings, 29,426 feet or 44.7 per cent. Vat Staves 8,439 or 14.1 per cent. Paling Posts 151,297 feet or 71.1 per cent. Hardwood Beams and Spars 69,339 feet or 68.5 per cent. Firewood 16,581 tons or 22.4 per cent. Charcoal 581,179 lbs. or nearly 20 per cent, and Paling Staves 34,572 in number or 47 per cent.

51. The total amount of royalty collected on forest products during the year totalled \$60,865.93 as against \$51,510.88—an increase of \$9,355.05 or 18.1 per cent.

52. *Forest Products other than Timber.*—The quantity of balata declared in 1925, was 1,240,262 lbs. as against 1,236,211 lbs., an increase of 4,051 lbs. or .3 per cent.

53. *Gums other than Balata.*—No gums other than balata were declared as against 762 lbs. during 1924.

54. The number of labourers registered to bleed balata during the year was 3,305 as against 3,565 in 1924. The number of general labourers (*i.e.*, other than balata and mining) registered during the year totalled 3,200 as against 4,358 during the previous year. This class of labourer is employed principally in connection with the timber industry, *vide* Appendix 15.

55. *Seizures and Prosecutions.*—Forty-six seizures were made by Officers of this Department of articles being illegally removed from Crown Lands. Of these 32 were sold realizing a total of \$648.98 including royalty amounting to \$69.35. The other 14 were unsold up to the close of the year.

56. *Total Revenue.*—The revenue from rents and royalties on all forest industries—exclusive of office, survey and inspection fees—was as follows:—

	1924.	1925.
Rents—Timber and Timber Products ...	\$ 8,525 71	\$ 8,688 08
Balata and Gums ...	14,920 00	11,360 00
Permissions ...	1,418 29	1,725 63
Royalty—Timber and Timber Products ...	26,721 14	36,638 79
Balata and Gums ...	24,731 84	24,864 98
Miscellaneous—Fines and Seizures ...	169 44	1,147 74
Sundries, Barks, Orchids, &c... ..	78 04	112 95
	\$76,564 46	\$84,538 17

57. The total collected as above represents a fraction over 26 per cent. of the total revenue of the Department collected from all sources during 1925.

COLONY LANDS.

(Lands the property of the Colony of British Guiana as distinct from lands vested in the Crown).

58. *Plantation Groves.*—This estate was sold to Mr. H. M. Nehaul on the 2nd December, 1918. Mr. H. M. Nehaul continues to pay interest on unpaid balance.

Interest collected \$420 54

59. *Plantation Clonbrock.*—This estate has been sold out and is now under control of the Local Government Board.

Rates paid by Government \$ 31 20
Instalments collected 30 00

60. *Plantations Unity and Lancaster.*—These estates are under the control of the Local Government Board. A few house lots remain unsold.

Rates paid by Government \$ 22 50
Instalments collected 20 00

61. *Plantation Triumph*.—This estate has been sold out and is under the control of the Local Government Board with the exception of that portion known as the McKenzie Empolder comprising an area of 204 acres, which is leased to the Triumph Sugar Coy.

Rates paid by Government	...	...	\$ 89 33
Revenue collected	...	...	939 33

62. *Plantation Thomas*.—The Churchmen's Union Cricket Club, British Guiana Cricket Club and Demerara Cricket Club continue to lease their respective portions on the South side of the Public Road.

Revenue collected	...	...	\$ 3 00
Expenditure	...	...	Nil.

63. *Plantation Best*.—This estate is under the control of the Local Government Board. Nine house lots remain unsold.

Rates paid by Government	...	...	\$ 27 00
Revenue	...	...	...

64. *Plantations Christianburg and Wismar*.—The Demerara Bauxite Coy. continue to lease 1,835 acres for mining bauxite. There are a few lots rented out under a yearly tenancy for cultivation purposes and for cutting wood.

Rates paid by Government	...	...	\$ 25 05
Revenue Collected	...	...	502 68

65. *Plantations Windsor Forest, La Jalousie and Hague*.—These estates are under the control of this Department; the major portion being leased to small cultivators, principally East Indians.

66. *Drainage*.—All drainage trenches were kept clean throughout the year. The rainfall recorded on the front part of Windsor Forest for the year was 62 inches 80 parts. Owing to the drought the La Jalousie drainage sluice silted up with drift mud, and completely blocked all drainage. Attempts were made to force the channel but owing to shortage of water it proved unsuccessful, although a small flow of water was obtained.

67. Windsor Forest outlet koker remains closed. The Public Works Department is erecting a drainage-pump and digging a high level trench in order to force these channels when blocked; it is not yet completed.

68. *Water Supply*.—All the water supply trenches were kept clean throughout the year.

69. *House Lots*.—All drains were kept clean and many of them were re-dug. Streets were made up where necessary and special attention was paid to the sanitary conditions of these lots.

70. *Pasture, Windsor Forest*.—This Pasture comprising 220.5 acres was maintained in good order. The drains were made up and fences repaired.

71. During the early part of the year The Royal Bank of Canada foreclosed a mortgage on Mungera, the Proprietor of 114.19 acres, part of Lot Letter C. of the front lands of the Western half of Plantation Hague, and the Government bought this piece of land from the Royal Bank for the Colonisation Scheme, at present it is rented out to farmers in small areas, under a yearly tenancy.

72. The following table shows the areas occupied and those remaining available of each of the three estates respectively, at the close of the year as compared with the previous year :—

	Windsor Forest.		La Jalousie.		Hague.	
	1924 Acres.	1925 Acres.	1924 Acres.	1925 Acres.	1924 Acres.	1925 Acres.
Leased	470.22	470.22	785.25	785.25	541.6	655.75
Granted to Returned Soldiers	...	...	5.75	5.75	...	...
Laid out but not Leased	64.25	64.25	245.25	245.25	72.75	72.75
Not yet laid out	...	...	...	...	480'	480'
	534.47	534.47	1036.2	1036.2	1094.35	1208.50

73. The following statement shows the Revenue and Expenditure in connection with each estate during the year :—

	Revenue collectable for 1925.	*Revenue collected 1925.	Balance outstanding at end of 1925.	Expenditure 1925.
Pln. Windsor Forest	\$ 3,620	\$ 3,379 08	\$ 1,601 23	\$ 2,757 64
Pln. La Jalousie	4,302	4,954 43	4,126 59	2,655 23
Pln. Hague	4,085	6,136 44	3,563 30	3,295 80
	\$ 12,007	\$ 14,469 92	\$ 9,291 12	\$ 8,708 67

74. *The figures showing the Revenue collected during the year 1925 include revenue outstanding at the close of the preceding year.

75. The large amount of \$9,291.12 still outstanding at the end of 1925 is attributable to the low prices prevailing for padi during the past few years and is not regarded as irrecoverable. The amount outstanding at 31st December, 1924, was \$12,459.26.

76. *Pln. Craig.*—All water supply and drainage trenches were kept clean throughout the year and dams were made up when necessary.

77. The following table shows the financial position of this estate :—

Revenue collectable for 1925	Revenue collected during 1925	Balance outstanding at 31.12.25.	Expenditure.
\$ 870	\$ 867 69	\$ 570 25	\$ 1,799 85

78. The amount of \$570.25 outstanding is due to abandonment of the lands owing to drainage and irrigation difficulties which appear to be due in large measure to the peaty (or "pegassy") nature of the soil and as the defaulting lessees were non-residents, and have scattered about the district, there is little or no hope of recovering these outstanding rents.

79. The following statement shows the area occupied and remaining available at the close of the year as compared with 1924 from which it will be seen that the land in the 2nd depth has been entirely abandoned.

	1924.	1925.
Leased	63	Nil
Not leased	397	460
	460	460

80. In September the North drainage sluice was undermined and gave out. It was found to be impracticable to patch it up and it was decided to put down a new sluice.

81. *Bourda, Georgetown.*—Two plots of land are rented to the Georgetown Cricket Club and Georgetown Football Club respectively. The latter Club entered into a new lease during the year under report.

Revenue collected	...	...	\$132 00
Expenditure	...	...	Nil.

82. *America Stelling, Newtown.*—Four strips of land adjoining Mud Lots 26 and 27, Water Street, known as America Stelling are leased to Messrs. Smith Bros. & Co., Ltd., at an annual rental of \$720. Of this amount a moiety of \$360 is paid to the Georgetown Town Council.

Revenue collected	...	...	\$720 00
Paid to Town Council	...	...	360 00

83. *Kalacoon, Essequibo River.*—This land is leased to the Bartica Agricultural Estates at an annual rental of \$50.

There was no expenditure.

84. *Liberty Island.*—204.93 acres of this Island is leased to Mrs. Willems at an annual rental of \$35.75, while 246 acres are leased to small farmers.

Revenue collected	...	...	\$ 50 08
Expenditure	...	...	Nil.

85. *Kortberaad.*—S. N. Moakan, to whom this place was sold, paid up his instalment and interest.

Instalment	...	...	\$225 00
Interest	...	...	73 65
Overdue interest	...	...	9 44
Expenditure	...	...	Nil.

CROWN LANDS—MINING.

GOLD.

86. *Production.*—A statement giving the annual gold production of the Colony for 1884 to the end of 1925 is given as Appendix 7.

87. From this it will be seen that the production for 1925 was 9,107 ozs. 3 dwts. 3 grs. valued at \$173,033 (£36,048 19s. 2d.), an increase of 1,920 ozs. over the production for 1924.

88. A comparative statement of gold obtained from the various districts during 1924 and 1925 is given as Appendix 8.

89. This shows that the largest producing area continued to be the Essequibo-Konawaruk-Potaro District with a total of 7,736 ozs. odd; whilst the next best was the Barima District in the North West with a total output of 820 ozs. odd.

90. *Dredging.*—The major portion of the gold output for 1925 was won by dredging. The dredging concessions formerly worked by the Guiana Gold Coy., Ltd., and now owned by Brigadier-General Rice, C.B.E., D.S.O., produced 1,257 ozs. from the Konawaruk area, whilst the Minnehaha Development Company produced 5,530 ozs. from the Minnehaha and Mahdia Creeks. These give a total of 6,787 ozs. won by dredging, showing an increase of 1,495 ozs. over 1924.

91. Details of the gold won by dredging from 1902 to 1925 are given as Appendix 10.

92. The operations of the D. C. Syndicate in the Barima River, North West District, at Arakaka, with a small drag-line bucket operated from bank to bank in the manner described in last year's report were continued during 1925, but were interrupted for a period through change of local management. The output for the year was 106 ozs. odd. Prospecting operations were re-commenced in the Cuyuni and Aranka Rivers towards the end of the year by the Aranka Gold Coy., Ltd., but dredging had not been commenced at the close of the year.

93. *Alluvial washing by hand methods.*—The output from this source only amounted to 2,214 ozs. due to the fact that nearly all the men who used to engage in gold mining are now engaged in the search for diamonds. Nevertheless there was an increase of 319 ozs. over last year's production.

94. No hydraulic or deep mining operations were carried on during the year but attempts were made to test a gold-bearing reef in the Kaburi District which gave good surface results, *vide* Appendices 9 and 11.

DIAMONDS.

95. A statement showing the total number, weight and value of diamonds declared in each year since 1901 is given as Appendix 12. From this it will be seen that the total quantity of diamonds declared during 1925 was 1,160,271 stones weighing 182,895 carats valued at \$3,935,118 (£819,816 5s.) a decrease of 2,690 carats as compared with the 1924 production.

96. The production from the different Districts was as follows:—

			<i>Stones.</i>	<i>Carats.</i>
Mazaruni	...	...	938,078	149,249
Puruni	...	...	59,070	7,399
Cuyuni	...	...	8,371	1,025
Potaro	...	...	150,911	24,110
Berbice	...	...	3,841	1,112

97. As compared with 1924, there was a decrease in output from the Mazaruni of 964 carats, the Puruni of 2,192 carats and the Potaro of 970 carats; whilst the output from the Cuyuni increased by 479 carats and the Berbice River by 978 carats, as given in Appendix 13.

98. The general run of the stones was practically the same as in 1924, being 6.3 to the carat as against 6.2.

99. The largest stones declared weighed— $24\frac{1}{4}$, 20, $16\frac{5}{8}$, $13\frac{11}{16}$, $12\frac{3}{4}$, $12\frac{1}{2}$, $11\frac{7}{8}$, $11\frac{1}{4}$, 11, $9\frac{3}{4}$, $9\frac{1}{2}$, $9\frac{1}{4}$, $9\frac{1}{8}$, 9, $8\frac{1}{2}$ carats respectively.

100. As in former years practically the whole of the production was won by local diggers from shallow gravels worked by hand methods, the few concentrating machines which have been installed so far being insufficient to effect the returns.

101. *Mazaruni District.*—The output from this District falls into two groups (a) the main Mazaruni River and tributaries above Kamakusa and (b) the Puruni River and its tributaries.

102. The output from the main Mazaruni for 1925 was 938,078 stones weighing 149,249 $\frac{1}{2}$ carats as against 848,932 stones weighing 150,213 $\frac{3}{4}$ carats in 1924—a very small reduction in the aggregate weight of stones won and a slight increase in the average number of stones per carat.

103. The output from the Puruni River District, for 1925 was 59,070 stones weighing 7,399 carats, as against 73,269 stones weighing 9,591 carats in 1924—a decrease of 2,192 carats.

104. The Warden of the Mazaruni District is of opinion that had it not been for the protracted drought towards the latter part of the year and the closing of several rich claims through litigation, the year's production for that District would have been greater. There is, however, a tendency on the part of the shopowners in the District, who used to finance prospecting parties, to close down on this phase of their activities and concentrate more on the claims they already hold. This is reflected in the drop of 222 in the aggregate number of Prospecting Licences and of 2,000 in the aggregate number of Mining Privileges issued by the Department during the year, whilst the number of men registered to work on mining claims as labourers rose by 1,617.

105. There is usually a shifting of the centre of activity in the Mazaruni District during each year, and in 1925 interest was principally directed to the opening up of the "Buck Canister Sands" area which comprises the left bank of the Mazaruni River from the old Buck Canister Landing up to Enachu, and the drainage areas of the Kamanabaru and Pakuseru Creeks in addition to the land contained in the wide loop of the main river known as Red Hill Bay.

106. As this field is in the centre of the district and easily accessible there was quite a rush there and seven new shops were opened to serve the locality.

107. Another field was opened up in the Rock Point-Kumaka area of the Kurupung where four new shops were established.

108. Of the old fields, the upper Kurupung, Tacouba Creek, Eping and Perenong localities continued to attract attention; but work was practically closed down in the Meamu and Issenero, which are the most distant areas.

109. *Law and order* in the district was on the whole fairly good. The Warden Magistrate held 58 Criminal Courts during the year at the various centres and dealt with 155 cases as follows:—

Assault including actual and grievous bodily harm	...	37
Claim-raiding	...	20
Larceny	...	18
Abusive language	...	11
Breach of contract	...	9
Threatening language	...	9
Unlawful possession gold and diamonds	...	5
Damage to property	...	5
Armed with dangerous weapon	...	5
Disobeying Steerman's order	...	4
Disorderly behaviour	...	4
Neglecting to comply with Warden's order	...	3
Unlicensed firearm	...	3
Failure to produce "Mining Privilege"	...	3
Trespass	...	2
Overloaded boat	...	2
Failure to obtain permit for firearm	...	2
Inciting to commit summary conviction offence	...	2
Inciting to commit indictable conviction offence	...	2

And one each of running falls during prohibited hours, removing location boards, working on claim without permission, maliciously wounding animal, forgery, defrauding mining partner, drunk whilst in charge of boat, unlawfully conveying diamonds and unlawfully re-locating claim.

110. Fines were inflicted aggregating \$2,280 of which \$821.51 was paid.

111. Prosecutions were conducted by Officers of the Department as follows :—

	Kamakusa.	Bartica.	Total.
Breaches of Mining Laws ...	17	...	17
" " Revenue " 	3	...	3
" " River Nav. Regs. ...	8	4	12
	28	4	32
	—	—	—

112. Three inquests were held during the year.

113. Seven Petty Debt Courts were held during the year, and dealt with forty-one matters.

114. The police stationed in the Upper Mazaruni District numbered twenty men and an Officer, the latter and seven men being stationed at Kamakusa, five men at Oranapai, and four each at Eping and Kurupung.

115. No police stations were moved during the year.

During the year forty-seven prisoners were incarcerated in Kamakusa Prison.

116. Conveyance of persons, freight and mails to the district was, with the exception of a few trips made by a Fairey "3D" Seaplane with Rolls Royce Eagle IX. engine, (belonging to the Real Daylight Balata Coy. and acquired primarily for communication with their depôt at Rupununi Mouth on the Essequibo River) carried out entirely by boats and this was augmented by the inauguration of a Government Contract Mail Boat Service from Kamakusa to the postal stations between that point and Kurupung, and *vice versa*.

117. *Traffic*.—River traffic on the Mazaruni River comprised 821 boats with 17,378 persons passing the station at Kamakusa on the up-journey and 828 boats with 17,916 persons on the down journey, whilst 59 boats with 912 persons branched off up the Puruni river and 38 boats with 694 persons travelled down the Puruni to Bartica.

118. There were 13 boat accidents on the Mazaruni during the year resulting in a loss of 34 lives or .09 of the number of persons who travelled up and down the river. This is exceptionally high, the number of lives lost by drowning during the two previous years being 10 and 15 respectively.

119. Telegraphic communication was maintained by wireless between Georgetown and Kamakusa and arrangements were made to erect another wireless station at Enachu.

120. *Health*.—The health of the District was on the whole fairly good. One hundred and twenty-seven in-patients were treated at Kamakusa Hospital and 840 out patients were treated. Ten deaths occurred at the Hospital out of a total of 79 deaths throughout the District during the year, exclusive of the 34 cases of drowning already referred to, but including six deaths from accidents other than drowning and one suicide.

121. The principal causes of death were Malaria, Pneumonia, Dysentery and other intestinal diseases.

122. Of the deaths recorded all but one occurred amongst non-Europeans and were largely attributable to low powers of resistance due to malnutrition or chronic disease. One European died of Malaria. The number of deaths in mining districts recorded during the year is given in Appendix 16.

123. *Population*.—A rough census by the Warden at the end of July, 1924, gave the number of people then in the upper Mazaruni District as 6,600. Applying the figures for arrivals and departures at Kamakusa since that date it would appear

that the greatest activity occurred in the District during May when 5,900 persons were in the district, whilst the quietest periods were January and December when there were only 3,800 in the District respectively. Presumably only about two-thirds of these would be actual diggers, the other third being shopmen, boathands, etc.

124. These figures are, of course, only approximate ; but it is probable that the production can be taken as representing the output of about 3,000 diggers constantly employed, which gives an average of about $53\frac{1}{2}$ carats per man per year or say 1 carat a week valued at about \$17 to \$20. If these figures are approximately correct, it is not to be wondered at that the diggers prefer the diamond fields to the gold-fields, where the average earnings were very much less.

125. *The Potaro District.*—The output of diamonds from this District in 1925 aggregated 150,911 stones weighing 24,110 carats as against 128,110 stones weighing 25,080 carats in 1924—a decrease of 970 carats.

126. Practically the whole of this output came from the section of the Potaro River and its tributaries between the Kuribrong River and Amatuk Falls ; but a few parcels aggregating 1,142 stones weighing $363\frac{1}{2}$ carats were declared from the Anundabaru Creek, a tributary of the Maiquak River which enters the Potaro River about 80 miles above Kaieteur Fall. This latter provides still further evidence of the widespread occurrence of alluvial diamonds in the gravels related to the sandstone conglomerate formation.

127. Like the Mazaruni District (and particularly the Puruni River section) the output from the Potaro District was affected by the prolonged dry weather which prevailed during the latter part of the year ; the output for the second part of the year being 35% less than the first.

128. *Law and Order* in this District is maintained by the Police and the Magistrate of the Demerara River District who travels periodically to hold court ; but the Warden carries out the duties of Commissary of Taxation and Superintendent Registrar of Births, Marriages and Deaths in addition to his substantive duties of Warden, Officer in charge of River Navigation and Sub-Protector of Indians.

129. *Traffic.*—Passenger and freight traffic to this District is conveyed by the launch service run thrice weekly by Sproston's, Ltd. During the year under review 4,382 persons arrived at Tumatumari and 4,479 persons departed.

130. *Health.*—The health conditions appear to have been normal throughout the year.

131. A well-equipped hospital is maintained by Government in the centre of the District and a new Government dispensary was opened at Kangaruma during the year.

132. *Cuyuni District.*—The output of diamonds from this District aggregated 8,371 stones weighing $1,024\frac{1}{2}$ carats in 1925 as against 4,362 stones weighing $549\frac{1}{2}$ carats in 1924—an increase of $475\frac{1}{2}$ carats.

133. There is no present indication of any serious development of the diamond industry in this District, the deposits of diamondiferous gravels discovered so far being of limited extent and the stones smaller than in the adjoining Puruni and Mazaruni Districts.

134. This District is administered from Bartica and the number of boats recorded as leaving Bartica for the Cuyuni in 1925 was 45 conveying 443 persons. There is no resident population in this District save a few Aboriginal Indians.

135. *Barbice District.*—The total output of diamonds from this District during 1925 was 3,841 stones weighing 1,112½ carats, as against 612 stones weighing 134½ carats in 1924—an increase of 978½ carats. As in the case of the Cuyuni, there is no present indication of any serious development of the diamond industry in this District, possibly owing to its remoteness from the main mass of the sandstone conglomerate formation, evidence of the existence of which, in that locality, is restricted to a comparatively small area.

BAUXITE.

136. Mining operations were continued by the Demerara Bauxite Coy. (a branch of the Aluminum Coy., Ltd., of Canada) on their holdings at Akyma and Coomacka, Demerara River, throughout the year, and 174,999 tons of selected ore were exported after being crushed and dried at the Company's works at Mackenzie lower down the river, which is the highest point to which ocean-going vessels can proceed.

137. Of the ore exported 140,585 tons contained 60% or more aluminium and 34,414 tons from 50% to 60% aluminium, the whole being valued at \$886,342.90 or an average of a little over \$5.06 per ton, F.O.B. Mackenzie.

138. Pending completion of the Aluminum Coy.'s works in Canada, all the ore was exported to the U.S.A. with exception of 4,976 tons shipped to the United Kingdom.

139. Royalty amounting to \$17,488.90 was paid on the ore won from Crown Lands at the rate of 10 cents a ton, in addition to the Export Tax, collected by the Customs Department, of 1½ per cent. on the value of all ore exported, based on current market quotations for bauxite imported into the U.S.A.

140. The rents paid during the year on Crown and Colony Lands held by the Company amounted to \$758.60.

141. *Employment.*—The average number of persons employed throughout the year was 922 of whom 97.36 per cent. were local employees. The average monthly pay-roll was \$36,574.33—the maximum being \$40,954.51 in July, 1925 and the minimum \$32,399.28 in February.

142. *Medical.*—During the year a new Hospital erected, equipped and staffed solely at the Company's expense was opened at Mackenzie. This has very generously been thrown open to residents in the district as well as to the Company's employees and from the succeeding figures it will be seen that full advantage is being taken of the facilities thus provided.

143. The Hospital is a light re-inforced concrete building 290 feet long and contains two large public wards and 6 private two-bed wards. The original number of beds was 56, but there is ample accommodation for 75 beds. It is also provided with a fully equipped Bacteriological Laboratory, an up-to-date Operating Theatre with Electric Steam Steriliser room annexed, a delivery room for maternity cases, a small operating-room for septic cases and minor operations with orthopædic table for Plaster of Paris work and an X-Ray room with equipment for diagnosis and Therapeutics.

144. To the Hospital is annexed the central Dispensary, with the Out-patient Department. Attached to this is a large store-room from which supplies are issued to the Dispensary at Akyma belonging to the Company and the Dispensaries at Wismar, Rockstone and Butukari belonging to Messrs. Sprostons, Limited, in which concern the Company holds a controlling interest. Residences for the Chief Medical Officer, Dispensers, Matron, Nurses and Orderlies, of similar style and construction to the Hospital, have been also erected.

145. The Medical Staff consists of a Chief Medical Officer, Surgeon, two Dispensers and an Assistant Dispenser, a Matron, three Nurses, three Orderlies and six Ward Maids.

146. The Patient movement of the Hospital and Dispensaries during 1925 is as follows:—

Total number of Patients treated in Hospital . . .	1,285
Total number of days spent in Hospital by Patients..	10,803
Total number of calls at the Dispensaries for treatment	25,027

Of the number of days spent in Hospital 5,568 were spent by employees of the Company and the balance by non-employees; and of the number of calls at the Dispensaries 20,200 were by employees and the rest by non-employees.

147. *Sanitation and Preventive Treatment.*—During 1925 the Company spent \$10,592.93 on Sanitation and Prevention of disease.

148. A Sanitary Staff consisting of a Foreman, Sub-foreman and a labouring gang averaging 18 men is kept constantly at work, mainly in the routine conservancy operations around the villages and camps; upkeep and disinfection of community living quarters; routine mosquito control work throughout the plant, inspection of food supply, etc.

149. During 1925, plans were made and authority obtained for the construction of two large concrete community latrines, suitable for 300 users each, provided with septic tank, chlorination tank and 40 gallon automatic flush.

150. All the family houses in the "Cockatara" model-village for employees, north of Mackenzie, were provided with proper kitchen sinks leading to a system of soaking-pits, for the disposal of kitchen waste. The working of these pits has been very satisfactory, all greasy stagnant fly-breeding kitchen water being thus eliminated from the open surface drains.

151. Hook-worm control work, instituted in 1923, was continued by the systematic treatment of all new-comers with Carbon Tetrachloride. Approximately 5,500 cases have been treated from 1923 to the end of 1925 and the effects of this work have been most satisfactory. In 1923, before the mass treatment campaign was started, the infection index amongst the labourers was 68 per cent., whilst a recent hook-worm survey gave an infection rate of only 3 per cent. The effect of the treatment in increasing the working abilities and resistance of the labourers has been very considerable.

152. *General Health.*—The general health of the labouring forces on the Company's properties throughout the year was excellent, as an average of only 1.5 per cent. men were off the job daily for sickness or injury. The maximum disability, owing to Malarial fever relapses, was seen during the months of June and July with an average of 2.8 per cent. daily. A daily prophylactic administration of 5 grain doses of quinine to the labouring force was carried out from the 25th June to the 15th of September, an average of 200 doses being distributed daily, with excellent results.

153. Two small Typhoid fever outbreaks (in all 7 cases) occurred at the Akyma mine during June and September. The cases were immediately isolated, disinfection and vaccination of contacts carried out and no further spread of the infection was seen. Dysentery was extremely rare throughout the year; the few cases seen were mainly chronic, i.e., relapses of old infection.

154. *Fatalities.*—No fatal accidents occurred in connection with mining operations or ore-treatment processes. Two fatal accidents occurred on construction work, due to collapse of scaffolding.

155. *General.*—The establishment of this highly organised, well-equipped and progressive industry marks an entirely new and important chapter in the Mining

history of the Colony and is an excellent example of what is possible in the matter of well-directed mining enterprise in good hands, where the mineral resources warrant heavy capital outlay along permanent lines.

MINERAL OIL.

156. No operations in connection with Mineral Oil were carried out during the year ; but negotiations were commenced by certain British and American Oil interests for the transfer to them of Oil Exploration Licences held by the Honourable Nelson Cannon, the Honourable E. G. Woolford and the Estate of Evan Wong, deceased, with a view to commencing exploration work at an early date.

MINING TITLES.

157. Two concessions to mine or dredge for gold, valuable minerals and precious stones were issued during the year, and thirteen Exclusive Permissions to occupy and explore Crown land for Gold, Silver and valuable minerals and Precious Stones and Platinum and allied metals were issued. Of this number four were issued as Free Exclusive Permissions on the terms granted to first discoverers of any metal or mineral other than Gold, Precious Stones, Bauxite or Mineral Oil. Sixty-nine Claim Licences were issued to mine for Gold only, whilst 931 were issued to mine for Precious Stones or Gold and Precious Stones combined. 1,698 Prospecting Licences were issued and 13,638 Mining Privileges were issued as against 1,920 and 15,635 respectively during the previous year, *vide* Appendix 14.

LEGISLATION.

158. No new legislation connected with Mining was introduced during the year.

MEANS OF COMMUNICATION.

159. The Potaro-Konawaruk Road, Tiger Creek Road and Kangaruma Trail in the Potaro District, and the Camaria Road in the Cuyuni District, were maintained by the Public Works Department.

160. The Barima Road, the Five Stars Trail, the Eclipse Portage and the Morawhanna-Wanaina Road in the North West District, were maintained by the Commissioner of that District as Deputy of the Director of Public Works.

161. The cattle trails from Takama on the Berbice River and Arakwa on the Demerara River to the Rupununi savannahs were maintained by the Public Works Department with the assistance of the Land Officer, Rupununi, who supervised the section from Kurupukari on the Essequibo River to Annai at the commencement of the Rupununi savannahs.

• SURVEYS.

162. *Topographical and Economic Survey.*—The second annual appropriation of \$20,000 was voted by the Combined Court at its Annual Session in 1923 for continuing the Topographical and Economic Survey work commenced in 1924 in terms of Combined Court Resolution No. 34 of 1923.

163. As explained in last year's report the survey was commenced in the area between Latitudes 6° and 7° North and Longitudes 59° and 60° West as this was the section of country concerning which information was most urgently required in regard to the probable life of the alluvial diamond deposits and the mineralogical possibilities generally in connection with the question of railway construction to the upper Mazaruni.

164. As a result of the recommendations of the Railway Commission which sat in 1924 and selected Bartica as a starting point for such a railway, if constructed, it was decided that a Hydrographic Survey of the estuary of the Essequibo River should be carried out by the Harbour Board and the services of a retired Naval Officer were secured for the purpose, thus relieving the surveyor of this Department—Mr. M. P. Hastings—who had commenced the work.

165. During the first part of the year 1925 there were six surveyors and one surveyor's assistant engaged on the Topographical Survey in the section of the Upper Mazaruni District referred to, and two Surveyors engaged on the extension of the surveys and levels from the coast to Bartica and Kartabu point for connection later with the surveys being carried out farther inland. During the latter half of the year, owing to exhaustion of funds, only two Surveyors were able to take the field—one to continue the primary traverse to Cuyuni and the other to assist the Geological Party.

166. The work done by the Topographical Survey Party comprised 28 miles of primary traverses, 14 miles of precise levels and 430 miles of chain and compass traverses with barometric levels; all of which were through dense forest, which necessitated the cutting and clearing of lines. In addition to this 103 miles of river surveys were carried out.

167. The Geological and Mineralogical reconnaissance survey was commenced in February in the Upper Mazaruni District by Mr. H. J. C. Conolly, B.Sc., A.R.S.M., to whose party a surveyor of the Lands and Mines Department was attached during the second half of the year.

168. The geological party covered the country between Peaima Falls and Kurupung including the Haimaraka, Issenero, Meamu and Putareng districts, during the first part of the year. During the second half of the year they completed the examination of the Kurupung area and covered the Kubenang, Eping, Enachu, Red Hill, Tomasing, Buck Canister Sands, Buck Canister, Puruni, Oranopai and Meamu Creek Districts.

169. The Surveys carried out by the Geological party comprise 120 miles of compass and time surveys of the Mazaruni, Kurupung, Eping and Meamu rivers; 184 miles of compass and pacing surveys with barometric heights along the trails and detail lines cut in the Kurupung, Eping, Enachu, Red Hill, Buck Canister, Puruni and Oranopai District; and 12 miles of chain and compass traverses with barometric heights.

170. *Surveys for Issue of Title.*—One hundred and seventeen precise surveys covering an aggregate area of 3,458 acres were carried out during the year.

171. Nineteen chain and compass Surveys of Woodcutting tracts, mining claims and a dredging Concession, covering an aggregate area of 5,210 acres were also carried out.

172. *Miscellaneous Surveys.*—Over 50 miles of chain and compass Surveys of the Pomeroon river and its tributaries within the Pomeroon Indian Reservation were carried out in connection with the reduction in area of that reservation.

173. Twenty-five miles of river Surveys were carried out by the Warden of the Mazaruni District.

174. Surveys were also carried out in the Demerara river in the vicinity of Christianburg and Mackenzie to enable the erection of navigation marks by the Harbour Board.

175. *Private Surveys.*—Three surveys were made under the Land Surveyors Ordinance, 1891, by Government Surveyors, for demarcation of boundaries of private properties.

RIVER REGULATIONS.

176. The supervision of boat traffic on the river Essequibo and its tributaries the Mazaruni, Cuyuni, Potaro and Rupununi, etc., and the Rivers Demerara, Berbice and Courantyne and their tributaries, was continued by me as Navigation Officer and the Officers of this Department stationed in the various districts, as Deputy Navigation Officers, throughout the year.

177. Fifty examinations were held of candidates for certificates as Steersmen and Bowmen of boats plying on those rivers; 17 Steersmen's and 21 Bowmen's Certificates were issued to successful candidates.

178. Twelve prosecutions were instituted against Steersmen and Bowmen for breaches of the Regulations and one certificate was cancelled during the course of the year; 2,734 boats and their equipment were inspected during the year and certificates issued in cases where they were found to be in proper condition. Where necessary certificates were refused until the boats and their equipment were put in order.

ABORIGINAL INDIANS.

179. The duties of Protector of Indians and Sub-Protectors were carried out by the Commissioner and the various District Officers of the Department.

180. The depôts in Georgetown and New Amsterdam for the accommodation of Indians when visiting these towns were made use of by 906 Indians as follows:—

	Males.	Females.
Georgetown	709	77
New Amsterdam	72	48
	<u>781</u>	<u>125</u>

181. No prosecutions in behalf of Aboriginal Indians were instituted by the Sub-Protectors.

182. The number of individual permits issued for the employment of Indians totalled 705 as against 856 for 1924; but in addition many Aboriginal Indians were employed by persons and firms under bonds providing for the due payment of wages.

183. No balata was bled by Aboriginal Indians on the Reservations during the year.

EQUIPMENT AND CRAFT.

184. The instruments and other equipment for the survey and outdoor staff were maintained in good order.

185. The launches and boats belonging to the Department were kept repaired and painted.

RUPUNUNI DISTRICT.

186. This Department continued the administration of the Rupununi District by means of a Land Officer with a Travelling Magistrate's Commission, in place of the District Commissioner formerly stationed there.

187. There is very little revenue collected in the district, owing to the lack of currency in circulation and to the fact that the Ranchers find it more convenient to pay through town agents. The total revenue collected by the Land Officer during the year was, Lands and Mines Department \$198.80, Commissaries (Inland Revenue) \$126.50. No Customs revenue was collected.

188. Six Courts were held during the year and eleven cases were tried, viz.:—
Assault 1; Threatening language 5; Bad bleeding of Balata trees 4; and grievous bodily harm 1.

189. The Government Stock farm at Annai was maintained without expense to Government pending disposal of the stock as opportunity offered, as decided upon when the District Commissionership was abolished.

190. Two horses died during the year and 29 head of cattle were sold for an aggregate of \$250, which was sufficient to cover the Vacqueros' salary. The stock

in hand at the end of 1925 was Cattle 110, Horses 2 and Water Buffaloes 7; or a total of 119 head as against 133 at the end of 1924.

191. The portion of the Cattle Trail between Annai and Kurupukari—a distance of 67 miles, of which 57 is through forest—was maintained by the Land Officer. Four bridges were erected, a corral was built at Surama and the trail was kept clear of fallen trees.

192. The number of cattle that passed Annai Police Station during the year *en route* for the Coast along the trail was 2,106, as against 1,620 in 1924.

193. The total heads of stock in the district at the close of the year are given as follows, viz. :—1 mule, 8 donkeys, 160 sheep, 335 pigs, 1,789 horses and 60,600 cattle.

194. The number of boats recorded as passing Kurupukari, on the Essequibo river, were, up 152 and down 134. The number of people carried being, 2,673 and 2,213 respectively. A total of 599,239 lbs. of balata was declared as passing the station downwards during the year. This does not include the balata from the Siparuni river, which enters the Essequibo below Kurupukari.

STAFF.

195. The Assistant Commissioner, Mr. J. Mullin, A.I.M.M., was on leave from February to December during six months of which time he was in attendance at the British Guiana Pavilion at Wembley. Mr. H. P. Christiani, F.R.G.S., Drawing Office Superintendent, acted as Assistant Commissioner during Mr. Mullin's absence.

196. The new Forestry Department having been created as from the 1st of the year, Mr. L. S. Hohenkerk, M.B.E., Forestry Officer, was transferred thereto as Superintendent of Forest Surveys.

197. Mr. W. Cunningham, 1st Grade Surveyor, continued in charge of the Topographical Survey work during the year.

198. Mr. H. J. C. Connolly, B.Sc., A.R.S.M., was appointed Geological and Mineralogical Surveyor and took charge of the Geological Survey work in February.

199. Mr. Smith Bracewell, B.Sc., A.R.C.S., D.I.C., arrived in the Colony and was appointed Assistant Geological Surveyor in October.

200. Mr. G. F. Messervy, Land Officer and Surveyor, Demerara River district, was appointed to act as Chief Clerk in March and was later confirmed in the appointment as from that date.

201. Mr. F. U. Tronchin, 1st Grade Surveyor, acted as Drawing Office Superintendent.

202. The probationary appointment of Mr. A. W. Cooper as a Government Surveyor was not confirmed and he left the service in April.

203. Mr. C. L. Ridley, F.S.I., acting Government Surveyor, was confirmed in his appointment as from the 12th June.

204. Mr. H. E. Anderson, 2nd Class Clerk, was promoted Clerk to the Currency Commissioners as from the 9th November.

205. Mr. J. Winter, 3rd Class Clerk, was transferred to the Forestry Department as from the 1st November.

206. Mr. J. A. T. Reis, 4th Class Officer, was promoted to 3rd Class Clerk in the Treasury on 1st May.

207. Mr. N. B. W. Smith, 4th Class Officer, was promoted to the Forestry Department as from the 26th November.

208. The following departmental appointments were made consequent on the foregoing transfers :—

Mr. T. H. Greathead, 3rd Class Clerk, to be a 2nd Class Clerk.

Mr. L. O. Van Sertima, 4th Class Officer, to be a 3rd Class Clerk.

Mr. R. P. Young, 5th Class Officer, to be a 4th Class Officer.

Mr. V. N. S. Gomes promoted from 5th Class Clerk, Police Department, to be 4th Class Officer in this Department.

Mr. C. P. deFreitas appointed a 5th Class Officer.

Miss M. L. Davis, 5th Class Clerk, to be a 4th Class Clerk.

Miss A. Uchlein, 6th Class Clerk, to be a 5th Class Clerk.

Mr. C. D. Rohee, Clerical Assistant, to be a 6th Class Clerk.

Miss D. Craig to be Clerical Assistant.

Mr. F. A. D. Cleare, Surveyor's Assistant, remained seconded for duty with the Resident Consulting Engineer, Georgetown Improvement Scheme.

209. Mr. V. Roth, Government Surveyor, continued to discharge the duties of Warden and Magistrate in the Mazaruni district throughout the year.

210. Mr. E. S. E. Parker, Government Surveyor, continued to discharge the duties of Land Officer and Travelling Magistrate in the Rupununi district throughout the year.

211. The following Officers were on leave during the year :—

Mr. G. A. Pasea, 1st Class Officer, for 3 months from 6th April.

Mr. J. R. Winter, 3rd Class Clerk, for 6 months from 19th May.

Mr. R. S. Kaufmann, Government Surveyor, for 6 months from the 30th July.

Mr. C. H. Parsley, Government Surveyor, 6 months from 6th August.

Mr. M. P. Hastings, F.S.I., Government Surveyor, for six months from 31st August.

Mrs. C. Lynch, 5th Class Clerk, for 6 months from the 23rd October, 1925.

Messrs. J. Phang, Government Surveyor, and C. G. Belmonte, returned from leave of absence and resumed duty on the 4th and 15th May respectively.

GEO. D. BAYLEY,
Commissioner of Lands and Mines.

The Honourable
The Acting COLONIAL SECRETARY.

COMMISSIONER OF LANDS AND MINES REPORT, 1925.

APPENDIX 1.

DEPARTMENT OF LANDS AND MINES.

Comparative Statement of Revenue collected for the years 1924 and 1925.

SOURCE WHENCE COLLECTED.	Year 1924.		Year 1925.	
III. INTERNAL REVENUE—				
3. Auction Duty	4 53		19 41	
5. Acreage Tax	17,114 97		17,389 49	
7. Duty on Transports, &c.	649 08	17,668 58	513 40	17,922 30
V. FINES, FEES OF COURT, RE-IMBURSEMENTS, &c.—				
1. Fines and Seizures	169 44		1,147 74	
5. Boat Regulations	108 72		49 00	
22. Official Publications	210 21		198 80	
26. Affidavit Fees		458 37	2 50	1,398 04
VI. RENTS—				
2. Colony Lands—				
Pln. Triumph	934 82		959 33	
Thomas	4 00		2 00	
Bourda	73 00		132 00	
Christianburg and Wismar	598 37		502 68	
Windor Forest	4,862 51		3,379 06	
La Jalousie	3,902 52		4,954 42	
Hague	4,141 67		6,136 44	
Lots, Potaro Landing	12 00		14 00	
Lot 64, Courantyne	24		24	
Mahaica Toll House	10 00		10 00	
Smyths Town, N/A., (Race Course)	5 00			
Onderneeming	80		80	
Bartica	8 00		6 00	
America Stelling	678 00		360 00	
Kalacoon	50 00		50 00	
Whim	11 00		11 00	
North-West District	23 00		16 25	
Pln. Best			24	
Plaisance	3 00		3 00	
Liberty Island	99 07		50 08	
Pln. Craig	740 28		867 69	
Lot 66, Courantyne	5 00		5 00	
Pln. Olonbrook			1 00	
Lot 67, Kingston	30 00		30 00	
Friendship	10 50		35 00	
Pouderoyen	3 00	16,005 78	24	17,506 47
3. Crown Lands—				
Demerara Ice House	600 00		600 00	
Mud Lot, Charlestown	60 00			
Licences of Occupancy and Leases	16,752 04		20,966 98	
Georgetown Club	480 00	17,892 04	480 00	22,046 98
VII. FORESTS AND MINES—				
(a) Forests—				
1. Fees	9,483 55		10,866 11	
2. Balata Licences	14,920 00		11,360 00	
3. Woodcutting Licences	8,625 71		8,688 08	
4. Permissions	1,418 29		1,725 63	
5. Royalty on Timber, etc.—				
Timber				
Shingles				
Cordwood				
Charcoal				
	26,721 14		36,638 79	
6. Royalty on Balata, etc.—				
Balata	24,724 22		24,964 98	
Do Indian				
Rubber				
7. Royalty, Miscellaneous—				
Sand, Gums, Shell, Mangrove Bark, Orchids, etc.	78 04		112 95	
8. Registration of Labourers	1,429 68	87,300 68	1,542 00	95,828 54
(b) Mines—				
1. Fees	1,093 30		1,116 30	
2. Prospecting Licences	9,600 00		8,490 00	
3. Claim Licences, Gold	2,825 00		2,750 00	
Do. Precious Stones	31,095 00		33,671 00	
5. Mining Privileges	3,752 40		3,273 12	
6. Exclusive Permissions	1,752 44		2,504 17	
7. Mining Concessions	1,035 88		752 40	
8. Dredging Concessions	437 48		531 69	
9. Royalty on Gold	948 11		1,161 94	
Forward	52,539 61	139,355 40	54,250 62	154,702 33

APPENDIX 1—(CONTINUED).

Comparative Statement of Revenue collected for the years 1924 and 1925.

SOURCE WHENCE COLLECTED.	Year 1924.		Year 1925.	
Brought forward ...	\$ 52,539 61	\$ 139,355 40	\$ 54,250 62	\$ 154,702 38
(b) Mines—Contd.				
10. Precious Stones—Fees, Alluvial Workings	...	...	...	...
Sale of Forfeited Gold and Diamonds	...	...	...	...
11. Miscellaneous—Sale of Tablets	355 38	...	1,514 81	...
12. Registration of Labourers	1,549 44	...	1,441 20	...
13. Royalty on Bauxite	16,511 20	...	16,134 70	...
14. Sale of Forfeited Claims	27 50	...	127 75	...
15. Royalty on Diamonds	97,532 56	168,515 69	91,417 48	164,886 56
VIII. INTEREST, GENERAL	506 62	506 62	713 84	713 84
IX. MISCELLANEOUS—				
1. Fees, Private Surveys	16 67	...	41 36	...
2. Sundries	3,726 07	3,744 74	1,199 47	1,240 83
X. SALE OF CROWN LANDS—				
Sale of Crown Lands	661 83	661 83	830 62	830 62
XI. SALE OF COLONY LANDS—				
Unity and Lancaster	20 00	...	20 00	...
Clonbrook	50 00	...	30 00	...
Triumph	...	...	60 00	...
Old Queen's College	...	...	75 00	...
Windsor Forest	...	...	2,400 00	...
Hague	...	...	30 00	...
Huis't Dieren	5 00	...	...	...
Kortberaad	...	...	...	...
Grove	...	75 00	...	2,615 00
XII. PREMIUMS ON GRANTS, LEASES, ETC.	16 00	16 00	1 00	1 00
Total Collected	\$ 312,875 28	\$ 312,875 28	\$ 324,990 18	\$ 324,990 18

APPENDIX 2.

Comparative Statement showing the empoldered and cultivated areas of Sugar Plantations on 30th September, 1924, and 30th September, 1925.

ON 30TH SEPTEMBER, 1924.				
County.	Canes.	Mixed Cultivation.	Uncultivated.	Total Empoldered.
	Eng. Acres.	Eng. Acres.	Eng. Acres.	Eng. Acres.
Demerara	33,540	7,126	45,352	86,018
Essequibo	3,013	2,305	10,747	16,065
Berbice	19,318	6,563	31,838	57,719
Total	55,871	15,994	87,937	159,802
ON 30TH SEPTEMBER, 1925.				
County.	Canes.	Mixed Cultivation.	Uncultivated.	Total Empoldered.
	Eng. Acres.	Eng. Acres.	Eng. Acres.	Eng. Acres.
Demerara	33,739	7,317	44,953	86,009
Essequibo	2,855	2,470	10,740	16,065
Berbice	20,106	6,447	31,826	58,379
Total	56,700	16,234	87,519	160,453

APPENDIX 3.

Total cultivated and empoldered areas of Sugar Plantations during the last five years, at 30th September in each year.

	Eng. Acres Canes.	Eng. Acres Empoldered.
1921	66,545	168,002
1922	59,032	163,413
1923	55,121	162,189
1924	55,871	159,802
1925	56,700	160,453

APPENDIX 5.

Return of Articles Declared from Licensed Crown Lands and the Royalty paid thereon.

ARTICLES.	1924.		1925.	
		Royalty.		Royalty.
Greenheart	510,816	\$ 15,324 48	725,670	\$ 21,770 10
Hardwood (other than Greenheart and Mora)	\$2,885	657 70	3,618	41 81
Mora	38,296	765 92	67,647	1,348 30
Crabwood	56,512	565 12	150,964	1,509 64
Soft Woods	9,638	96 38	14,262	143 98
Firewood	57,582	4,606 61	74,163	5,933 26
Charcoal	8,139,751	4,130 20	8,660,930	4,497 79
Shingles	2,476,700	247 67	3,526,713	378 65
Paling Staves	60,673	72 31	95,145	112 12
Boards, Planks and Scantling	75,699	38 30	12,981½	69 45
Vat Staves	76,622	76 74	68,193	64 22
Paling Posts	103,981	104 38	164,060	149 37
Hardwood, Beams and Spars	81,876	30 48	116,646	40 50
Wattles, Shovel Sticks, &c.	8,537	4 77	38,564	18 69
Greenheart and Mangrove Bark	281,490	57 90	792,146	70 87
Manicole	50	08	1,200	1 94
Total Royalty on Timber, etc., from Woodcutting tracts ...	...	\$ 26,779 04	...	\$ 36,060 69
Balata	1,236,211	24,724 22	1,240,262	24,805 24
Rubber ... ..	...	...	...	...
Gums, &c.	762	7 62	...	...
Orobids ... ..	...	...	...	...
Total Royalty from all Forest Products ...	...	\$ 51,510 88	...	\$ 60,865 93

APPENDIX 6.

Statement showing Quantities and Values of Forest Products Exported and Imported during the years 1924 and 1925.

ARTICLES.		1924.		1925.	
		Quantity.	Value.	Quantity.	Value.
Exports.					
Timber, rough logs—					
Greenheart ... ..	... cub. ft.	168,257	\$ 124,664	206,221	\$ 143,689
B.G. Mahogany or Crabwood ... ..	... "	...	...	10,096	7,563
Other kinds except Cedar and Wallaba ... ..	... "	197	163	217	230
Mora ... ..	... "	...	...	216	236
Lumber and Scantling, rough—					
Greenheart ... ..	... feet	142,846	17,220	127,643	14,393
B.G. Mahogany ... ..	... "	5,073	327	...	...
Mora ... ..	... "	1,297	114	2,670	172
Other kinds except Cedar and Wallaba ... ..	... "	31,647	1,904	16,248	1,176
Wood and Wood Products—					
Shingles ... ..	... number	1,278,200	8,661	1,892,238	15,155
Charcoal ... ..	... tons	2,268	38,763	1,683	34,879
Firewood ... ..	... "	6,477	19,569	6,144	21,429
Railway Sleepers ... ..	... number	39,238	31,519	39,777	32,921
Bark for tanning ... ..	... lbs.	...	...	...	...
Unenumerated, casks, tubs, bateaux, paddles, posts, &c. ... ..	... "	...	5,710	...	10,460
Value of Timber and Wood Products exported ...	...	...	\$ 209,851	...	\$ 282,303
Balata ... ..	... lbs.	1,370,212	822,162	904,784	543,033
Gums ... ..	... "	708	72	477	57
Value of Balata and Gums exported ...	...	...	\$ 822,234	...	\$ 543,090
Total value of forest products exported ...	...	...	\$ 1,032,085	...	\$ 821,393
Imports.					
Lumber, dressed ... ..	... feet	124,239	6,609	350,517	\$ 21,487
Do, undressed ... ..	... "	3,777,177	228,798	4,023,039	234,287
Shooks ... ..	... packs	...	...	...	...
Staves and Headings ... ..	... number	...	...	...	...
Total value of forest products imported ...	...	...	\$ 235,405	...	\$ 255,724

APPENDIX 7.

Statement showing the amount of Gold obtained in the Colony during the below-mentioned years, with the value of same.

Years.	GOLD.			VALUE.				
	Ozs.	dwts.	grs.	\$	c.	£	s.	d.
1884	250	0	0	4,375	00	911	9	2
1885	939	0	0	16,432	50	3,423	8	9
1886	6,518	1	12	114,066	32	23,763	16	4
1887	10,986	14	0	192,267	25	40,055	13	6
1888-1889	20,216	1	8	353,781	17	73,704	8	2
1889-1890	32,332	16	5	565,824	19	117,880	0	9
1890-1891	66,864	4	21	1,170,124	27	243,775	17	9
1891-1892	110,555	12	5	1,934,723	19	403,067	6	7
1892-1893	134,124	7	23	2,347,176	97	488,995	4	0
1893-1894	138,527	16	14	2,424,237	01	505,049	7	6
1894-1895	132,994	15	20	2,327,408	86	484,876	16	11
1895-1896	121,285	5	7	2,123,492	13	442,185	17	2
1896-1897	127,479	8	4	2,230,889	65	464,768	13	6
1897-1898	121,490	15	20	2,126,088	86	442,935	3	7
1898-1899	113,114	3	6	1,979,497	85	412,395	7	8
1899-1900	112,789	10	20	1,973,816	98	411,211	17	5
1900-1901	114,102	1	14	1,996,786	36	415,997	3	2
1901-1902	101,332	3	22	1,773,313	43	369,440	5	11
1902-1903	104,526	10	14	1,829,214	26	381,086	6	1
1903-1904	90,336	1	22	1,580,881	68	329,350	7	0
1904-1905	95,864	4	9	1,677,623	83	349,504	19	3
1905-1906	94,363	7	5	1,651,358	81	344,033	1	8
1906-1907	85,504	15	18	1,496,333	78	311,736	4	1
1907-1908	67,209	10	04	1,176,166	40	245,034	13	4
1908-1909	73,654	12	06	1,288,955	72	268,532	8	10
1909-1910	64,829	19	19	1,134,524	82	236,359	6	9
1910-1911	54,988	15	18	962,303	78	200,479	19	1
1911-1912	50,273	14	21	879,790	51	183,289	13	9
1912-1913	51,765	8	0	880,011	80	183,335	15	10
1913-1914	82,706	6	3	1,367,626	41	284,922	2	4
1914-1915	64,982	9	13	1,141,092	70	237,727	12	11
April to Dec., 1915	39,793	10	03	698,765	08	145,577	18	8
1916	37,129	6	21	651,712	08	135,773	7	0
1917	29,538	16	12	518,480	23	108,016	14	3
1918	24,546	18	02	430,862	25	89,762	19	4
1919	16,216	15	05	287,044	80	59,801	0	0
1920	12,692	03	00	224,657	05	46,803	11	0
1921	12,828	10	02	281,671	14	58,681	9	9
1922	10,876	11	05	204,542	62	42,613	0	11
1923	7,262	02	03	136,131	00	28,361	0	0
1924	7,187	02	17	129,314	39	26,940	9	11½
1925	9,107	03	03	173,033	00	36,048	19	02
Total	2,654,087	14	18	\$ 46,319,269	13	£ 9,678,210	8	9½

APPENDIX 8.

Statement of Gold obtained from the below-mentioned Districts during the years 1924 and 1925.

				ozs.	dwts.	grs.	ozs.	dwts.	grs.
				1924.			1925.		
Barima	...	...	...	771	04	21	820	08.	20
Barama	...	...	...	88	05	11	60	19	01
Waini	...	...	...	3	04	06	...	...	...
Cayuni	...	...	...	48	11	00	42	15	08
Groete Creek	...	...	...	...	...	...	...	...	...
Puruni	...	...	...	94	13	12	163	15	12
Mazaruni	...	...	...	147	12	01	282	12	22
Esesequebo	...	...	...	3,343	11	01	51	15	06
Do. Potaro	...	...	...	2,690	00	13	4,384	16	06
Demerara	...	...	...	...	...	...	...	...	...
Berbice	...	...	...	...	...	...	...	...	...
Total	...	...	...	7,187	02	17	9,107	03	03

APPENDIX 9.

Statement of Gold obtained by Quartz Milling declared during the below mentioned years.

Name of Company.	Situation of Mine.	YEARLY QUANTITIES															Total. Ozs.			
		1894-95 Ozs.	1895-96 Ozs.	1896-97 Ozs.	1897-98 Ozs.	1898-99 Ozs.	1899-1900 Ozs.	1905-06 *Ozs.	1906-07 Ozs.	1907-08 Ozs.	1908-09 Ozs.	1909-10 Ozs.	1910-11 Ozs.	1911-12 Ozs.	1912-13 Ozs.	1913-14 Ozs.		1914-15 Ozs.	Apr.-Dec 1915 Ozs.	1916 Ozs.
Kanaimapoo Gold Mining Co., afterwards Gold Quartz Syndicate	Kanaimapoo, right bank Demerara river	621	44	22	51	7	11	...	...	...	...	...	...	...	...	...	...	...	...	756
Barima Gold Mining Co., now British Guiana Gold Mines, Ltd.	Barima Mine, Arakaka orsek, right bank, Barima river	...	...	6221	1575	...	...	...	...	3,719	3,056	...	1574	394	...	...	...	...	...	16,539
Winter Gold Mining Co., now British Guiana Gold Mines, Ltd.	Winter Mine, Arakaka creek, right bank, Barima river	...	...	...	489	1702	...	...	...	...	...	...	...	...	...	...	...	...	...	2,191
Sates Syndicate	Arawatabaru, right bank Barima	...	...	...	986	...	...	...	...	...	...	...	...	...	...	...	...	...	...	986
Sir Walter Raleigh Gold Mining Co.	Right bank Barima river near Arakaka	...	...	79	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	79
Garr-Robertson Syndicate, afterwards Sealey Mine, now M. H. Engelen.	Right bank Barima river at Arakaka Landing	...	...	373	1524	146	77	...	...	...	...	...	...	...	...	...	...	...	...	2,190
British Guiana (Puruni) Gold Concessions Co., Ltd.	Peters Mine, right bank Puruni river	...	...	...	...	...	...	3664	9501	5315	9,568	10,469	...	...	...	...	...	108	1,103	140,223
Aremu Mining Co., Ltd.	Aremu Mine, right bank Big Aremu creek, right bank Cayuni river	...	...	...	...	...	...	...	...	...	...	101	6387	...	43	...	...	...	...	6,531
Totals		621	44	6695	4625	1855	88	3664	9501	5315	13,287	13,626	6387	1574	437	...	...	108	1,103	69,430

*Note.—During the years 1900-01, 1901-02, 1902-03, 1903-04, 1904-05, 1917, 1918, 1919, 1920, 1921 and 1922 no Gold was obtained from Milling.
† Of this amount 899 ozs. of Gold is the product of Concentrates shipped to the United States of America.

APPENDIX 10.

Statement of Gold obtained by Dredging declared during the below mentioned years.

Name of Company.	Situation of Concession.	YEARLY QUANTITIES.																				Total Ozs.				
		1902-03 Ozs.	1903-04 Ozs.	1904-05 Ozs.	1905-06 Ozs.	1906-07 Ozs.	1907-08 Ozs.	1908-09 Ozs.	1909-10 Ozs.	1910-11 Ozs.	1911-12 Ozs.	1912-13 Ozs.	1913-14 Ozs.	1914-15 Ozs.	1915 Apr-Dec Ozs.	1916 Ozs.	1917 Ozs.	1918 Ozs.	1919 Ozs.	1920 Ozs.	1921 Ozs.		1922 Ozs.	1923 Ozs.	1924 Ozs.	1925 Ozs.
British Guiana Dredging Syndicate	Barima River from Wakiparu Creek to Eclipse Falls ...	130	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	130
Omai Gold Mining Co. afterwards Dem. Exploration Synd., Ltd. ... Guiana Gold Coy., Ltd., reconstructed as the New Guiana Gold Co. in October, 1923, and acquired by Brig. Genl. Rice, C.B.E., D.S.O., in Decr., 1924 ...	Gilt Creek, left bank Omai creek, left bank Essequibo River ...	...	43	1233	687	948	1,481	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4,392
Minnehaha Development Co., Ltd.	Konawaruk River, left bank Essequibo River ...	...	...	...	...	613	2,652	3,868	4363	5706	7222	9,561	7,025	8170	6,942	8075	7290	4289	2904	3659	4650	1354	668	654	1257	90,912
Do.	Minnehaha Creek, Konawaruk, Essequibo River ...	...	...	...	...	...	...	...	98	1588	2347	2,472	3,079	1912	1,177	1385	...	950	239	...	...	1055	1783	2574	2785	23,445
Do.	Mahdia Creek, right bank, Potaro River ...	...	...	...	...	...	...	...	...	...	...	...	...	2526	1,871	2507	3094	2317	2094	2579	2120	2904	2012	2064	2745	28,833
	Totals ...	130	43	1233	687	1561	4,133	3,868	4461	7294	9569	12,033	10,104	12608	9,990	11967	10384	7556	5237	6238	6770	5313	4463	5292	6787	147,722

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APPENDIX 11.

Statement of Gold obtained by Hydraulicing declared during the below mentioned years.

Name of Company.	Situation of Concession.	YEARLY QUANTITIES.										Total Ozs.	
		1902-03	1903-04	1904-05	1905-06	1906-07	1907-08	1908-09	1909-10	1910-11	1911-12		1912-13	1913-14 Ozs.
Omai Gold Mining Company, afterwards Demerara Exploration Syndicate, Limited. ...	Hills in vicinity of Gilt Creek, left bank Omai Creek, left bank Essequibo River ...	2,255	4,524	13,075	7,269	...	...	...	...	...	...	...	27,123
Tassawini Mining Company ...	Hoorie Creek, left bank Barama River ...	...	...	...	...	74	950	6,192	2,710	252	823	243	11,244
	Totals ...	2,255	4,524	13,075	7,269	74	950	6,192	2,710	252	823	243	38,367

IX.

APPENDIX 12.

Statement showing the Number and Weight of Diamonds declared at the Department of Lands and Mines during the following Years :—

	Number.	Weight: (Carats).	£ s. d.		
			£	s.	d.
1901-1902	91,206	8,227	7,712	18	3
1902-1903	163,680	10,447	9,794	1	3
1903-1904	164,315	10,742	10,070	12	6
1904-1905	175,400	10,619	9,955	6	3
1905-1906	65,752	4,097	3,840	18	9
1906-1907	65,903	4,661	4,423	11	10½
1907-1908	29,007	2,122	1,988	19	1½
1908-1909	63,161	5,618	9,268	7	5
1909-1910	85,537	7,181	9,574	13	4
1910-1911	26,467	3,035	6,442	3	5
1911-1912	78,683	7,648	11,550	11	10
1912-1913	62,624	6,099	9,212	0	7½
1913-1914	93,752	11,119	21,178	10	0
1914-1915	100,522	13,716	28,576	0	10½
April to December—1915	19,461	3,678	7,663	0	5
1916	93,782	16,409	34,184	8	9½
1917	102,957	17,908	37,308	6	8
1918	77,819	14,196	29,575	0	0
1919	84,466	16,706½	95,710	16	8
1920	234,456	39,362½	281,535	18	0½
1921	507,200	102,603½	329,847	3	8½
1922	816,857	163,640½	825,285	4	2
1923	1,141,425	214,474½	1,033,014	3	4
1924	1,055,425	185,585½	858,322	19	5
1925	1,160,271	182,895½	819,816	5	0
Total	6,560,128	1,062,790½	£4,495,852	1	8½

APPENDIX 13.

Statement of Diamonds obtained from the below mentioned Districts during the years 1924-1925.

	1924.		1925.	
	Stones.	Carats.	Stones.	Carats.
Mazaruni	848,932	150,213½	938,078	149,249 ⅔
Puruni	73,269	9,590½	59,070	7,399 ⅓
Cuyuni	4,362	549½	8,371	1,024½
Potaro	128,110	25,080½	150,911	24,109½
Berbice	612	134½	3,841	1,112½
Barima	140	17½	...	...
Total	1,055,425	185,585½	1,160,271	182,895½

APPENDIX 14.

Comparative Statement showing the number of Concessions, Permissions, Licences and Privileges issued under the Mining Regulations and Mineral Oil Regulations during the years 1924 and 1925.

Title.	Purpose.	1924 Number.	1925 Number.
Concessions ...	Gold and Precious Stones ...	...	1
Do. ...	Gold, Silver, Valuable Minerals & Precious Stones ...	...	1
Exclusive Permissions ...	Gold, Silver and Valuable Minerals ...	3	4
Do. ...	Gold and Precious Stones ...	...	1
Do. ...	Gold, Silver, Valuable Minerals & Precious Stones ...	2	1
Do. ...	Valuable Minerals and Precious Stones ...	...	2
Do. ...	Platinum and Allied Metals ...	...	5
Claim Licences ...	Gold ...	97	69
Do. ...	Precious Stones ...	987	931
Do. ...	Gold and Precious Stones ...	8	...
Prospecting Licences ...	Gold and Precious Stones ...	1,920	1,698
Mining Privileges ...	Gold and Precious Stones ...	15,635	13,638
Exploration Licences ...	Mineral Oil ...	2	5

APPENDIX 15.

Statement of Labourers registered during the years 1924 and 1925.

Station.	County.	1924.				1925.			
		General.	Balata.	Mining.	Total Numbers.	General.	Balata.	Mining.	Total Numbers.
Georgetown ...	Demerara.	1,994	1,971	3,792	7,757	2,632	2,139	3,440	8,211
Christianburg, D.R. ...		2	6	...	8	...	...	...	...
New Amsterdam ...	Berbice.	366	1,459	19	1,844	551	1,003	32	1,586
Springlands ...		1	118	...	119	...	81	...	81
Kamakusa ...	Essequibo.	...	...	10	10	...	...	2	2
Potaro ...		...	...	71	71	16	...	5	21
Bartica ...		1,995	...	444	2,439	...	54	2,464	2,518
Morawhanna ...	Do. ...	...	11	10	21	1	28	20	49
Arakaka ...	N. W. District	...	...	...	...	...	...	...	...
Totals ...	...	4,358	3,565	4,346	12,269	3,200	3,305	5,963	12,468

APPENDIX 16.

Statement of Deaths occurring in the Gold and Diamond Fields recorded in the Department of Lands and Mines during the last six Years.

YEARS.	CAUSE OF DEATH.						TOTAL
	Ordinary Causes.	Drowned.	Cause of Death unknown.	Accidental (other than Drowning.)	Suicide.	Murder.	
1920	9	13	...	...	...	...	22
1921	6	...	...	...	...	...	6
1922	93	21	1	5	3	...	123
1923	217	53	2	8	...	1	281
1924	235	27	3	4	...	...	269
1925	186	47	...	5	...	...	238

APPENDIX 17.

Return of Boats and Passengers leaving Bartica monthly for the Mazaruni Puruni and Cuyuni Districts during the year 1925.

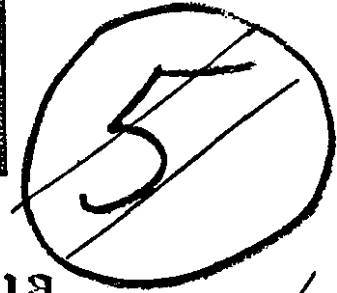
Month.	Mazaruni.		Puruni.		Cuyuni.	
	Boats	Passengers.	Boats.	Passengers.	Boats.	Passengers.
January	87	2,056	8	187	...	...
February	89	2,091	7	135	...	...
March	71	1,597	3	68	3	42
April	76	1,675	3	66	4	42
May	67	1,587	4	92	4	89
June	68	1,560	2	51	4	29
July	60	1,385	4	96	8	57
August	78	1,856	4	91	4	33
September	90	2,215	20	45	6	50
October	56	1,222	...	...	4	23
November	72	1,641	2	41	4	51
December	33	696	2	40	4	27
Total	847	19,581	59	912	45	443

3 DEC 1927



C.S.O. No. 5471/25.

British Guiana.



REPORT

OF THE

DEPARTMENT OF SCIENCE AND
AGRICULTURE,

FOR THE YEAR

1924.

Printed by the Authority of His Excellency the Governor.

GEORGETOWN, DEMERARA :

"THE ARGOSY" COMPANY, LIMITED, PRINTERS TO THE GOVERNMENT OF BRITISH GUIANA.

1926.

No. 11,965.

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REPORT OF THE DEPARTMENT OF SCIENCE AND AGRICULTURE
FOR THE YEAR ENDED 31st DECEMBER, 1924.

1. The following is my report on the working of the Department of Science and Agriculture for the year ended 31st December, 1924. Appended to it are detailed reports relating to the several divisions of the Department as follows:—

(1) The work of the Chemical division appears in the report of the Government Analyst.—Appendix I.

(2) The general work of the Botanical division is dealt with in the report of the Botanic Gardens.—Appendix II.

(3) The report of the Assistant Botanist and Mycologist.—Appendix III.

(4) The report on Agricultural Instruction comprises.—Appendix IV.

(5) The work of the Biological division is shown in the report of the Economic Biologist.—Appendix V.

(6) The work of the Veterinary division comprises the report of the Veterinary Surgeon.—Appendix VI.

The Meteorological observations for the Calendar year 1924, taken at the Botanic Gardens, Georgetown and at other stations in the Colony, will be published as a separate report.

STAFF.

2. *Head Office.*—As shown under the Chemical Division the Assistant Director was absent on leave from the 26th of May to the end of the year. Mr. E. M. Peterkin, Chief Clerk and Secretary of the Board of Agriculture, was absent from the Colony on leave from the 1st January to the 11th October, during his absence Mr. J. A. V. Bourne acted as Clerk and Secretary. Miss A. Jardim, was promoted on 15th February to be the Senior Clerical Assistant and Miss J. Pestano filled the vacancy caused by her promotion. Miss A. Jardim was absent on sick leave from the 30th May to the 30th June. Miss N. I. Valladares was appointed a Clerical Assistant on the 1st August.

Mr. C. L. C. Bourne, the Director's Scientific Assistant and Editor of the Board of Agriculture Journal, was absent from the Colony on leave from 7th February to 3rd March.

Chemical Division.—Mr. W. Francis, F.I.C., Deputy Government Analyst and Geologist, was absent from the Colony on leave from the 26th May to the end of the year. Mr. N. Newsam, Second Assistant Analyst, was absent from the Colony on leave from 20th August to 29th September. Mr. S. Young, 1st Laboratory Assistant, was transferred to the Agricultural Division on 15th September, and Mr. D. Iloo, Senior Clerical Assistant, was promoted to be 1st Laboratory Assistant from the 15th February.

Botanical and Agricultural Divisions.—Mr. A. A. Abraham, Horticultural Superintendent, was absent from the Colony from 9th February to 21st September, having been seconded for work at the British Empire Exhibition. Mr. H. Cole, Clerical Assistant, was promoted to be an Agricultural Assistant on the 16th September and Mr. G. L. Leitch was appointed a Clerical Assistant on 1st November.

Biological Division.—Mr. L. D. Cleare, Economic Biologist, was absent from the Colony on leave from the 20th March to the 28th April.

Veterinary Division.—Mr. A. Seton Milne, M.R.C.V.S., carried out his duties as Government Veterinary Surgeon during the period under review.

EXPENDITURE.

3. The total vote assigned to the Department by the Combined Court at its Session in November, 1923, for the year 1924 was \$92,406; of this amount there was at December 31st, 1924, an unexpended balance of \$5,076.69 as shown in the following:—

TABLE I.
ANNUAL ESTIMATES.

No. of Sub-vote.	Sub-vote.	Balances Unexpended.	Excess Expenditure.
1-15	Personal Emoluments—Fixed Establishment	\$ 33 07	
16-26	Personal Emoluments—Exclusive of Fixed Establishment	908 39	
OTHER CHARGES.			
27	Allowances for upkeep of Bicycles	62 40	
28	Commuted Travelling	43 22	
29	Travelling Expenses (General)		\$ 100 63
30-36	General Expenses	245 20	
37	Chemical	57 78	
38	Gas and Electrical Heating	46 49	
39	Geological and Mineralogical		80 59
40	Botanical	11 59	
41	Meteorological	64 05	
42	Biological	64	
43-44	Botanic Gardens		6 17
45	Other Government Gardens and Grounds	3 78	
46	Herbace Gardens	28 68	
47	Purchase, Production and Distribution of Seeds and Plants	8 80	
48-49	Experimental Fields	195 55	
50-52	Department's Station and Arable Farm, Onderneeming	516 04	
53	Live Stock—Purchase of	200 90	
54	Live Stock—Maintenance of	930 24	
55	D'Urban Park	466 02	
56	Cutting Grass for Police Horses	213 98	
57	Advertising	39	
58	Grants-in-aid		89 19
59	Subsidies	155 00	
60	Agricultural Apprentices	500 89	
61	District Gardens		35 94
62	Veterinary Preventive Measures	398 00	
63	Plant Pests Preventive Measures	128 10	
65	Contingencies	200 00	
	TOTAL	\$ 5,409 21	\$ 332 62

4. The payments into the Treasury during the year were as follows:—

Laboratory fees	...	\$ 232 50
Botanical Division: Economic & Ornamental plants	...	708 23
Agricultural Division	...	873 66
Sale of Official Publications	...	16 86
		\$1,831 25

A sum of \$4,621.86 was also paid into the Treasury, being fines inflicted by the Magistrates on the vendors of adulterated foodstuffs who were prosecuted on the strength of certificates issued by the Chemical Division of this Department.

5. The following are the abstracts of the Meteorological observations recorded at the Botanic Gardens, Georgetown, and at the Penal Settlement, Mazaruni, during the year 1924;—

Meridian of longitude for calculation of time adopted as standard			
in the Colony	...	...	60° W.
Hours slow of Greenwich time	...	...	3 hrs. 45 mins.

GEORGETOWN.

The meteorological station is situated in the Botanic Gardens, at a distance of 1.45 miles south of the Coast-line. The hours of observation are 7 a.m. and 1 and 6 p.m. local official time. The height of the barometer is six feet six inches above the mean sea-level.

During the year 1924 the air temperature in the shade for the months of January, February, June, and December was lower than the means recorded over the period 1846-1924. The highest temperature recorded was 89.0° on the 22nd November, while the lowest was 69.5° recorded on the night of 18th March. The mean shade temperature for the year was 80.5° or 1° above the average from 1846 to 1923. The total rainfall was 86.13 inches as compared with 80.52 inches in the year 1923 and with 91.77 inches for the period 1880 to 1923. The monthly distribution of the rainfall was abnormal, the precipitation in January being 3.57 inches below the average of 1846 to 1923, while the precipitation in March was .28 inches or 6.41 inches below this and was followed by June with a fall of 15.85 inches, or 4.49 inches above the average. For the months of July to December inclusive, the total rainfall was 8.11 inches higher than normal. The evaporation from a free water surface, a six feet square tank, at the ground level was 59.05 inches as compared with a normal evaporation of 57.90 inches; the evaporation for 1924 being 68.28% of the total rainfall. The total amount of the bright sunshine for the year was 2,671.2 hours as compared with 2,682.4 hours in 1923 and with 2,415.5 in 1922 and was 234.6 hours above the average from 1846 to 1923. The mean radiation temperature (blackened bulb in vacuo) was 7.2° higher than normal and 6° higher than that of the previous year, the maximum monthly record during the year being 153.1° for November while the highest daily record, 165°, occurred on the 31st October. The mean minimum temperature recorded at night on grass was 1.4° higher than the average. The mean velocity of the wind was 6.83 miles per hour the maximum velocity being 18.75 miles per hour.

MAZARUNI.

A sub-station established at the Penal Settlement, Mazaruni River, is in longitude 58° 38' 45" and latitude 60° 23' 35" N. at a distance of 42 miles south of the coast-line. The hours of observation are the same as at the main station in Georgetown. The height of the barometer is 55 feet above mean sea-level. During 1924 the mean air temperature in the shade was 78.3° F. the maximum temperature recorded being 91° on the 23rd and on the 28th of March, while the minimum, 65° occurred on the 26th January, as well as on 4 nights in February. The total rainfall was 144.51 inches or 43.41 inches higher than the average of preceding years. The general distribution of the rainfall was similar to that at Georgetown except that during the month of June 5.19 inches less of rain fell at Mazaruni than in Georgetown. For the month of December the rainfall at this station was 12.81 inches in excess of that at Georgetown for the same month. Rain fell on 197 days in the year as compared with 204 days in Georgetown. The total amount of bright sunshine recorded during the year was 2,146.1 hours as compared with 2,671.2 hours at Georgetown.

GENERAL AGRICULTURE.

6. The areas under experimental cultivation at the different stations of the Department during the year were as follows:—

TABLE II.

Products.		Acreage.
Rubber, Para, ...	...	36
Rubber, Sapium ...	...	2
Rubber, Other sorts.	..	5
Limes	...	7
Coconuts	..	2
Sugar Cane	...	10
Rice	...	14
Balata	...	4
Tonka Beans	...	1
Carludovica Palms...	...	1
Ground Provisions (various)	...	5
Bananas	...	3

Products.	Acreage.
Cotton ...	1
Fibres ...	1
Legumes ...	2
African Oil Palm ...	3
Corn (Maize) ...	1
Tibicusi—Letter Wood ...	1
Coffee (various) ...	1

This table does not include the acreage under experimental cultivation at Onderneeming Farm. There are planted on that farm at present the following:—

3,650 Cacao trees.
3,200 Coffee trees.
3,700 Lime trees.
600 Para Rubber trees.
800 Coconut palms.

7. *Sugar.*—As indicated in paragraph 40 of the 1919 report, the Agricultural Experiments and the Field trials in sugar-cane are now dealt with in the report of the British Guiana Sugar Planters' Experiment Station Committee.

8. The total area in sugar-cane cultivation in the Colony during the year 1924 was 55,130 acres, a decrease of 2,684 acres on the area occupied by the crops of 1923. Enquiries show that the area under cultivation for the ensuing year 1925 will be more than the area occupied in 1924, as 57,190 acres are reported to be under sugar-cane on December 31st, 1924, of which 3,800 acres are returned as cultivated by cane-farmers.

9. The following Table shows the area occupied by the principal varieties of sugar-cane under cultivation on sugar estates for the crops of 1925 as compared with those so occupied for the years 1923 and 1924:—

TABLE III.
THE PRINCIPAL VARIETIES OF SUGAR CANE IN BRITISH GUIANA UNDER CULTIVATION DURING 1923, 1924 AND 1925.
AREAS IN BRITISH ACRES.

Variety.	1923.	1924.	1925.	Increase or Decrease on 1924.	
	Acres.	Acres.	Acres.	Increase.	Decrease.
D. 625 ...	36,444	37,108	37,413	305	
Bourbon ...	1,506	391	323		68
D. 625 mixed with Bourbon and other seedlings ...	6,410	7,128	9,201	2,075	
D. 145 ...	3,909	3,496	2,649		847
D. 118 ...	1,978	1,656	1,576		80
B. 208 ...	1,101	625	403		222
R.P. 8 ...	844	498	461		37
Diamond 37 ...	312	363	316		47
B.H. 10 (12) ...	243	295	190		105
Diamond 185 ...	495	173			173
Ba. 6032 ...	300	138	89		49
D. 109 ...	203	125	127	2	
D. 419 ...	606	102	84		18
Diamond 581 ...	85	85	55		30
P.L. 2 ...	64	79	103	24	
D. 179 ...	64	52	46		6
E. 4396 ...	53	52			52
G. Transparent ...	416	38	29		9
D. 167 ...	50	37	51	14	
R.P. 20 ...	75	36	30		5
R.P. 21 ...	46	29	20		9
Java seedlings ...	56	26	20		6
D. 199 ...	24	24	25	1	
P.L. 374 ...	16	16			16
Small areas of other varieties and areas under varieties unenumerated ...	1,414	149	179	30	
Total Estates' Canes ...	56,774	52,718	53,390	672	...
Total Farmers' Canes ...	1,040	2,412	3,800‡	...	...
TOTALS ...	57,814	55,130	57,190	...	...

‡ Areas at Plns. Anna Regina and Hope transferred to Farmers' Canes.

10. The following Tables IV. and V. indicate the relative percentage distribution of the various kinds of sugar-cane under cultivation thereon during the crops of 1921, 1922, 1923, 1924 and 1925 and the distribution of the sugar canes according to their origin:—

TABLE IV.

Variety	For crops of				
	1921.	1922.	1923.	1924.	1925.
D. 625	56.5	59.4	65.4	70.4	70.1
Bourbon	3.5	2.5	2.7	0.7	0.6
D. 625 mixed with Bourbon and other Seedlings	13.9	15.2	11.5	13.5	17.2
D. 145	7.5	7.3	7.1	6.6	4.9
D. 118	4.8	4.1	3.6	3.1	2.9
Providence 8	1.6	1.3	1.5	1.0	0.9
B. 208	3.4	3.0	2.0	1.2	0.8
Diamond 37	0.2	0.3	0.6	0.7	0.6
B.H. 10 (12)	0.2	0.3	0.4	0.6	0.3
D. 109	0.5	0.5	0.3	0.2	0.2
Diamond 185	1.3	1.0	0.9	0.3	...
Ba 6032	0.3	0.4	0.5	0.3	...
D. 419	2.7	1.6	1.1	0.2	...
Other Varieties unenumerated	3.6	3.1	2.4	1.2	1.5
	100.0	100.0	100.0	100.0	100.0

TABLE V.

	1921.	1922.	1923.	1924.	1925.
Bourbon and other old Varieties	8.8	8.2	9.2	4.8	5.1
Java	1.1	0.4	0.1	0.1	0.1
Barbados	4.4	4.1	3.2	2.2	1.4
British Guiana:—					
Fls. Diamond and Providence	3.3	3.5	3.7	2.6	2.2
Botanic Gardens	32.4	83.8	83.8	80.3	91.2
	100.0	100.0	100.0	100.0	100.0

11. The average yields in tons of commercial sugar per acre of the principal varieties reaped during the crops of 1924 as deduced from returns supplied by the managers of the sugar plantations were as follows:—

TABLE VI.

Varieties of Sugar-cane.	Plantations.		Tons Sugar per acre.	
	No. reporting.	Areas reported in acres.	Mean.	Maximum.
B.H. 10 (12)	7	189	2.15	3.20
G. Transparent	3	18	2.12	2.37
D. 145	3	2,688	1.99	2.50
Bourbon	6	77	1.98	2.72
B. 208	4	614	1.86	2.37
D. 118	12	1,451	1.82	2.51
Ba. 6032	4	142	1.82	3.00
D. 625	21	28,797	1.81	2.91
D. 625 mixed with Bourbon and other seedlings	22	7,791	1.80	3.00
D. 419	2	62	1.80	1.87
D. 109	4	72	1.43	1.70

12. As owing to financial and to labour difficulties many of the smaller plantations were not able to keep up their cultivation as they would otherwise have done, so that their crops were short, it is desirable to record separately the results obtained by the larger and more favourably situated plantations. These results were:—

TABLE VII.

Varieties of Sugar-Cane.	Plantations.		Tons sugar per acre.	
	No. reporting.	Areas reported in acres.	Mean.	Maximum.
B.H. 10 (12) ...	4	163	2.35	2.73
Diamond 37 ...	2	364	2.32	2.43
D. 625 ...	15	22,651	2.09	2.91
Bourbon ...	5	54	2.05	2.72
D. 145 ...	7	2,864	2.02	2.50
B. 208 ...	4	614	1.86	2.37
D. 118 ...	10	1,316	1.84	2.51
Ba. 6032 ...	4	142	1.82	2.00

13. The results of large-scale field-trials with other varieties on the Sugar Plantations are shown in the following table :—

TABLE VIII.

Variety.	Acreage.	Yield.
Diamond 581 ...	81	3.02
Diamond 37 ...	345	2.43
D. 376 ...	10	2.30
Java ...	5	2.18
Diamond 185 ...	164	2.14
P.L. 2 ...	61	2.09
R.P. 8 ...	426	2.05
D. 179 ...	44	2.00
D. 157 ...	17	1.95
B. 3412 ...	15	1.90
R.P. 20 ...	33	1.84
R.P. 11 ...	27	1.67
P.L. 264 ...	16	1.31
P.L. 374 ...	15	1.22

14. The production of sugar on the sugar plantations for the year 1924 was 90,875 tons from 48,836 acres as compared with 90,758 tons in 1923 from 48,014 acres, while the export amounted to 85,896 tons, the latter an increase of 2,729 tons on that of 1923. The export of rum was 769,308 proof gallons as compared with 420,996 gallons in 1923. 1,160,677 gallons of molasses were exported during the year. The export of molascuit or cattle food was 1,324 tons.

15. The following Table shows the actual productions of sugar and the amounts exported during the years 1911-1924 :—

TABLE IX.

	SUGAR, TONS.		
	Produced.	Exported.	Home consumption or in store.
1911 ...	106,175	98,453	9,722
1912 ...	86,410	77,821	8,599
1913 ...	106,211	87,414	*19,817
1914 ...	116,622	107,138	9,484
1915 ...	119,091	116,224	2,867
1916 ...	114,292	101,650	12,642
1917 ...	108,181	114,407	...
1918 ...	107,560	93,901	13,659
1919 ...	86,971	83,139	3,832
1920 ...	87,186	83,765	3,421
1921 ...	110,985	108,270	2,715
1922 ...	101,128	90,570	10,558
1923 ...	90,758	83,166	7,592
1924 ...	90,875	85,896	4,979
Average 1911-24...	102,460	95,129	7,806

* Including sugar destroyed by the 1913 fire in Charlestown.

The local consumption of sugar has been, in round figures, during the period 1911-1924, 7,800 tons a year.

The following Table shows the annual acreage planted in sugar cane, the acreage reaped each year and the total amount of sugar produced, for the years 1919 to 1924 and the average for the period 1919 to 1924. It also shows the average production of sugar per acre under cultivation and per acre reaped :—

TABLE X.

Period.	Area under cultivation in acres. (English acres.)	Area reaped per annum, Acres. (English acres.)	Average Tons of Sugar per annum.		
			Total.	Per acre under cultivation.	Per acre reaped.
1919	70,876	55,944	86,971	1.23	1.55
1920	69,532	58,222	96,210	1.38	1.65
1921	63,420	58,027	107,815	1.70	1.85
1922	60,761	56,547	101,096	1.66	1.79
1923	57,814	50,510	89,811	1.55	1.73
1924	57,200	48,836	90,875	1.60	1.86
1919-24	63,267	54,681	95,614	1.52	1.73

RICE.

Experimental.

16. The experiments with varieties of rice were continued at the Experimental Fields. As in the previous years the varieties of proven value were planted in the North field on duplicated half acre plots. The following yields were obtained :—

TABLE XI.

Selected Varieties.		Plots.	Bags of 140 lbs. per acre.
Variety or Strain.			Yield.
Variety 75	...	1, 7, 11 & 15	29.8
Strain 77	...	5 & 17	28.2
" 78	...	9 & 18	26.6
" 79	...	6 & 10	26.2
Variety Demerara Creole	...	2 & 8	26.1
Variety H. 6	...	4 & 13	23.6
Strain H. 7	...	12	26.4

Certain strains, Nos. 76, 77, 78, 79 and H. 7 which when selected years ago showed certain characters differing from those of the parent. Although they have to some extent reverted in appearance to the original types, their average yields have been considerably in excess of those of the parent types and having proved to be constant as regards field yield have been numbered as follows :—

<i>Old.</i>	<i>New.</i>
75 strain 1	No. 76
75 " 2	No. 77
75 " 3	No. 78
75 " 4	No. 79
H6. " 1	H. 7

17. The yields on the whole were below the average of previous years. During the period of eighteen years in which trials with the varieties and strains have lasted the mean results have been as follows :—

TABLE XII.

Variety or Strain.	Bags of 140 lbs. per acre. Average to 1924.	Creole taken as 100 Average to 1924.
Nos. 76, 77, 78 and 79	25.3	96.9
H. 6 and H. 7	23.5	91.2
Demerara Creole	26.1	100.0

The cause of the decrease has been investigated and proved to be the depletion of the available nitrogen in the soil due to continual cropping. This accounts for a decrease of nearly 15 per cent.

18. The duplicate and quadruplicate trials of certain varieties and strains in small $\frac{1}{16}$ acre plots were continued, the Demerara Creole and No. 75 being employed for the comparison of yields. The trials gave the following results:—

TABLE XIII.

Variety or Strain.	Bags of 140 lbs. per acre.
Demerara Creole, specially selected ...	23.7
No. 75 Strain 77 ...	17.9
No. 75 Strain 79 ...	24.2
No. 75 Strain 76 ...	15.3

In this series of trials carried on over 9 crops the average yields compared with those of especially selected Demerara Creole padi taken as 100 have been:—

No. 75 Strain 77 ...	..	...	106.3
No. 75 Strain 79 ...	...	..	116.3
No. 75 Strain 76 ...	...	...	90.0

19. Other varieties of padi were planted, No. 75 being used for comparison. The results were:—

TABLE XIV.

(a) Comparison of British Guiana Hybrid varieties with No. 75:—

	Bags of 140 lbs. per acre.
No. 75 ...	25.3
Hybrid 33 ...	18.8
Hybrid 35 ...	16.2
Hybrid 37 ...	26.3

(b) Comparison of recently imported varieties with No. 75:—

No. 75 ...	...	...	21.4
Surinam Creole ...	...	...	24.8
Honduras ...	...	...	8.8
Mackenzie City ...	...	...	14.5
Bibili E.C. (Ceylon) ...	...	...	11.3
M.D. 11 (Ceylon) ...	...	...	30.0
H.H. 3 (Ceylon) ...	...	...	8.3
H. F. 14 (Ceylon) ...	...	...	19.7
Inchasal (Ceylon) ...	...	...	18.5
Nn. 2/81 (Ceylon) ...	...	...	16.0
Suali (Ceylon) ...	...	...	17.2

Two of the varieties, M.D. 11 (Ceylon), and Surinam Creole gave results in excess of those contained with No. 75.

The following varieties after several years' experiments have been discarded as being unsuited for cultivation on our lands:—

Sapanet, Nga Kyank, Radin, Ketan Item, Bawyut, Boeloc Poeti, Kunchor Kindja Ranti, Santap and Carolina Golden Grain.

In 1923 the following varieties were received from Ceylon:—

Bibili E.C., M.D. 11, H.H. 3, H.F. 14, Inchasal, Nn. 2/81 and Sulai. This has been the first trial of these varieties with the results shown above as compared with No. 75. M.D. 11 is of promise but further experiments are necessary before any definite opinion can be formed as to its probable yield on commercial lines.

20. During the year $5\frac{1}{2}$ tons of seed-padi were sold. There was not any free distribution of padi.

CULTIVATION.

21. The actual area occupied by rice cultivation in the Colony was returned at 29,406 acres, of which 10,866 acres yielded both spring and autumn crops, the area cropped being 40,272 acres. Of the total area 9,145 acres were used for rice-growing on sugar plantations. Due to the favourable weather conditions the crop was a fairly satisfactory one, resulting in 42,100 tons, equal to 673,613 bags, of 140 lbs. of padi and equivalent to 25,260 tons, or to 314,346 bags of 180 lbs. of cleaned rice. The yield per acre reaped was at the rate of 16.7 bags of padi. The rice produced was of good quality, and 4,470 tons were exported during the year 1924.

22. The rates of yields per acre reported from the various country districts varied widely. The following Table shows the yields per acre per crop in the districts :—

TABLE XV.

DISTRICT.	Acreage reaped.	Bags of Padi of 140 lbs. per acre.
North West District ...	22	2.3
Essequibo Coast ...	7,361	17.8
Essequibo River ...	4,715	17.3
West Demerara ...	4,447	17.0
East Bank, Demerara River ...	997	19.0
East Demerara ...	2,861	16.5
Mahaica-Abary ...	2,673	13.9
West Coast, Berbice ...	4,152	12.2
New Amsterdam and Berbice River ...	6,026	20.7
Courantyne ...	7,018	14.3
The Colony (Total reaped) ...	40,272	Average 16.7

23. The relation of the rice-growing industry to the sugar-cane and other agricultural industries of the Colony during the period 1903 to 1924 is summarised in the following Table XVI, in which the areas occupied by the various industries are given in British acres :—

TABLE XVI.

Period.	Sugar-cane.	Rice.	Other Products.	Total area under cultivation.
1903 ...	78,860	17,503	21,442	117,805
1908 ...	74,865	39,743	33,356	147,967
1913 ...	72,698	35,582	43,832	152,072
1918 ...	73,565	60,432	63,890	197,887
1919 ...	70,876	61,400	58,341	190,717
1920 ...	69,532	55,246	51,214	175,992
1921 ...	63,420	55,911	52,820	172,151
1922 ...	60,760	49,070	46,170	156,000
1923 ...	57,814	34,965	43,773	136,552
1924 ...	57,190	29,406	49,698	136,294

The area of land devoted in 1924 to cultivation of rice was 21.6 per cent. of the total cultivated area of the Colony, while lands occupied with sugar made up 42.0 per cent. of such area.

Very large areas of the front lands of the Colony, pre-eminently suited for the cultivation of rice, are still not so occupied.

24. The gradual extension of the rice industry is illustrated in the following Table which gives at five-yearly intervals to 1922, and thence in years, the areas in British acres under rice in the counties of the Colony, and the total yields of padi and of rice in long tons :—

TABLE XVII.

Period.	Mean Rainfall Coastal Stations Calendar Year	Areas under rice cultivation. British Acres reaped.				Yields of British Guiana.				
		Berbice,	Demerara.	Essequibo.		British Guiana total acreage. (reaped)	Padi tons.	Rice, tons (60% yield of cleaned Rice from Padi)	Tons per acre.	
				Mainland	Islands				Padi	Rice
1898-1902 ...	88.2	4,874	1,592	808	...	6,778	6,374	3,824	0.94	0.56
1903-1907 ...	99.2	8,684	4,962	3,076	1,001	17,712	17,701	10,620	0.99	0.59
1908-1912 ...	99.1	16,893	13,862	5,042	3,941	39,746	50,010	33,006	1.25	0.75
1913-1917 ...	89.6	16,406	24,372	4,685	3,950	49,695	60,560	36,386	1.22	0.73
1918-1922 ...	92.9	32,151	16,073	4,983	4,799	58,046	47,514	23,508	0.82	0.49
1923 ...	80.9	16,460	10,824	7,010	4,421	38,715	33,270	19,962	0.85	0.51
1924 ...	83.64	17,196	10,978	7,383	4,715	40,272	42,100	25,260	1.04	0.63

The marked diminution in yield per acre, since 1915 when the average yield was at the rate of 1.29 tons of padi per acre to 1922 when it had fallen to .56 ton per acre, was largely, if not entirely, due to the adoption of the unsatisfactory practice of broadcasting the seed-padi in place of transplanting from seed beds. This bad practice is being abandoned and the yield for 1924 shows a marked increase but the yield per acre is still far below its readily attainable maximum.

COCONUTS.

25. The area returned as planted in coconut palms in the Colony was 25,200 as compared with 22,970 in 1923, an increase of 2,230 acres, due to more complete returns having been made by cultivators. The practical abandonment of certain plantations owing to the prevalence of bud-rot disease, neglected control, and, still more important, unsatisfactory conditions of main and internal drainage has very greatly lessened what should have been the normal increase in planted areas. The development of the industry during five-yearly periods since 1904 is shewn in the following Table:—

TABLE XVIII.

Year.	No. of acres planted.
1904	5,140
1909	9,466
1914	15,894
1920	24,425
1924	25,201

26. The production of coconuts during 1924 was returned as 12,303,000 nuts, the export being 1,559,800 nuts. A large proportion of the crop was used for the production of oil for local use and of copra for export. The export of coconut oil was 21,804 gallons during 1924. The production of copra greatly increased, 16,508 cwts. being exported during the year under report, as compared with 8,401 cwts. in 1923. The equivalent in coconuts of nuts and products was 10,296,600 nuts.

The following Table gives the export of coconuts for quinquennial periods from 1892 to 1916:—

TABLE XIX.

Periods.	Average Annual Exports.
1892-6	80,370 nuts.
1897-1901	21,890 "
1902-06	187,300 "
1907-11	526,900 "
1912-16	1,600,860 "

Since 1914 records have been available for the annual exports of coconut oil and copra. Assuming that 60 nuts yielded one gallon of coconut oil and that 450 nuts are equivalent to 1 cwt. of copra the export of coconuts and their products, in terms of coconuts, have been as follows:—

TABLE XX.

	EXPORTS.			
	As Nuts.	As Oil.	As Copra.	Total Nuts.
1914-1921 (8 years) ...	2,452,000	1,204,000	668,000	4,324,000
1922 ...	2,131,000	1,763,500	940,500	4,835,000
1923 ...	2,650,000	1,597,000	3,780,000	8,027,000
1924 ..	1,559,800	1,308,240	7,428,600	10,296,640

27. The varieties raised at the Botanic Gardens from imported seed and from selected local nuts yielded satisfactory crops. Some especially selected nuts were distributed for planting purposes but the demand was almost negligible.

PARA RUBBER.

28. Owing to the ravages of the Para Rubber Leaf Disease and to low prices of rubber the area occupied by Para Rubber was reduced during the year to 1,655 acres. Due to low prices the trees on the stations of the Department were not bled during the year other than for the purpose of preparing samples of rubber for the British Empire exhibition; 500 lbs. of cured rubber being made for this purpose.

29. The average rates of growth of trees at the various stations have been as follows.

TABLE XXI.

Age of trees in years.	Girth in inches at 3 feet from the ground.				Age of trees.
	Onderneeming.	Issorora.	Georgetown.	Marlborough.	
1	3.0	2.0	1.0	2.0	1
2	8.7	4.5	3.3	7.0	2
3	12.7	8.0	4.7	9.0	3
4	17.7	8.5	6.5	13.0	4
5	21.0	13.2	7.0	15.5	5
6	22.2	15.2	7.3	17.0	6
7	24.0	20.4	9.7	23.9	7
8	25.2	21.5	9.7	25.2	8
9	28.7	27.5	11.7	32.3	9
10	30.0	29.0	12.3	36.0	10
11	32.6	31.8	13.0	...	11
12	34.5	35.0	13.0	...	12
13	43.7	35.5	13.0	...	13
14	44.1 (3)	38.1	14.0	...	14
15	46.9 (3)	39.6	14.0	...	15
16	48.0 (3)	40.7	15.3	...	16
17	50.0 (3)	42.1	15.4	...	17
18	51.2 (3)	...	17.4	...	18
19	51.6 (2)				
20	52.7 (2)				
21	57.6 (1)				
22	61.5 (1)				

(1) Three trees only.

(3) Seven trees only.

(S) Many of these trees were cut down in 1921.

An analysis towards the end of 1924 of the girths of the older trees planted prior to 1912 at Onderneeming and Issorora resulted as follows:—

TABLE XXII.

TREES.	TREES.				
	Girths at 36 inches from base.	Onderneeming.		Issorora.	
		Number.	Per cent.	Number.	Per cent.
30 to 40 ...	3	5.2	...	...
41 to 45 ...	5	5.2	41	27.9	
46 to 50 ...	14	21.6	56	33.1	
51 to 55 ...	16	26.3	23	15.6	
56 to 60 ...	14	24.6	11	7.5	
61 and over ...	8	14.1	16	10.9	

The numbers and girths of the trees which are now over 59 inches in circumference at the two stations are as follows :—

TABLE XXIII.

Girth Inches.	NUMBER OF TREES.				Girth Inches.
	Onderneeming.		Issorora.		
	1923.	1924.	1923.	1924.	
60	1	4	2	1	60
61	...	2	2	3	61
62	2	...	...	3	62
63	1	...	2	1	63
64	1	2	3	2	64
65	...	2	1	2	65
66	...	...	1	2	66
67	...	...	...	1	67
69	...	1	...	1	69
70	...	1	...	...	70
74	1	...	...	...	74
79	1	1	...	...	79
87	...	...	1	...	87
88	...	...	...	1	88

BALATA.

30. Twelve thousand two hundred and thirty-four cwts. of balata were exported during the year under report. This shows an increase of three thousand and seventy cwts. as compared with 1923.

The balata trees planted experimentally at Issorora have attained the following measurements :—

TABLE XXIV.

	Circumference at 4 feet 6 inches from ground.	Height.
3 TREES 17 YEARS OLD—		
Mean	30 inches	46 feet
Maximum	31 "	47 "
Minimum	27 "	41 "
43 TREES 13 YEARS OLD—		
Mean	25 inches	39 feet
Maximum	34 "	45 "
Minimum	21 "	33 "
33 TREES 12 YEARS OLD—		
Mean	23 inches	32 feet
Maximum	27 "	39 "
Minimum	14 "	27 "
157 TREES 11 YEARS OLD—		
Mean	20 inches	29 feet
Maximum	26 "	49 "
Minimum	13 "	21 "

The mean rate of growth of the Balata trees has been slow, the average being 1.85 inches increase in circumference per annum, the maximum rate being 2.62 inches, and the minimum 1.17 inches.

Balata trees may therefore take 30 years from planting out for the trees of a group to attain the legal tappable size—a girth of 36 inches at 4 feet 6 inches from the crown of the roots although about half of them may attain this size in 20 years while the most rapidly growing trees may do it in 14 years. Hence it will not be feasible on plantations of balata trees to commence any tapping operations at an earlier period than 15 years from planting out.

COFFEE.

31. The acreage under this product during 1924 was returned at 5,765 acres. This area is occupied almost entirely with Liberian coffee. About 100 acres are planted with coffee in the empoldered areas of sugar plantations. The areas returned as under cultivation in coffee during the two preceding years were 4,096

and 4,240 acres respectively; but many cultivators who during these years had more or less abandoned the cultivation of their coffee fields have on account of high prices again brought the coffee thereon into cultivation and have to some extent added to the area occupied by coffee. The extent of the area under cultivation with coffee during recent years is indicated by the following table :—

TABLE XXV.

Year.	Area stated to be under Coffee cultivation.
1905 ...	... 1,432 acres.
1910 ...	... 2,546 "
1915 ...	... 4,468 "
1920 ...	... 5,050 "
1921 ...	... 5,030 "
1922 ...	... 4,240 "
1923 ...	... 4,096 "
1924 ...	... 5,765 "

The quantity of coffee exported during 1924 was 4,581 cwts.

Most of the coffee grown in the Colony is consumed locally, that exported forming only a small proportion of the crop gathered.

CAOAO.

32. The area reported as under cacao was 1,918 acres.

The lack of progress of the cacao-growing industry during the past 17 years is shown by the following table :—

TABLE XXVI.

Year.	Areas under Cacao.
1905 ...	... 1,994 acres.
1910 ...	... 2,016 "
1915 ...	... 2,020 "
1923 ...	... 1,903 "
1924 ...	... 1,918 "

All the cacao produced is used locally either in the production of chocolate or of confectionery. There are extensive belts of land on the northern reaches of the rivers of British Guiana well suited in climate, in altitude and in facilities for drainage for cacao-growing, and it is to be greatly regretted that this cultivation has not largely increased.

LIMES.

33. The area returned as planted in lime trees in the Colony during 1924 was 711 acres, the reduction in area being due to the abandonment of the cultivation at Agatash where the manufacture of citrate of lime and of concentrated lime juice failed to give remunerative results. The industry is still carried on at Plantation Providence, Berbice and at the Onderneeming Government Farm, Esse-
-quibo.

The returns from these plantations show that 9,650 gallons of concentrated lime juice and 486 gallons of essential oil of limes were produced during 1924.

There was not any citrate of lime exported whilst the exports of lime juice and of essential oil of limes were 9,650 lbs. and 396 gallons respectively.

GROUND PROVISIONS.

34. The acreage returned as being under ground provisions was 14,444 acres as compared with the maximum area of 18,239 acres in 1915, and with an area of 11,924 acres in 1923.

It is frequently put forth as a proof of the lack of business acumen and energy on the part of the smaller farmers of British Guiana that large quantities of tropical "ground-provisions" are imported from the West Indian Islands and elsewhere in the tropics for use in the Colony. The imports during 1924 of the principal kinds of "ground-provisions" giving an equivalence of the numbers of acres necessary to produce them were as follows :

Products.	Bags and Barrels Imported.	Acres Required for Production
1. Sweet Potatoes	21,426 bags	478
2. Yams	55 "	2
3. Pulses (Peas, Dholla, etc.) ...	12,176 "	2,645
4. Pea Nuts	2,780 "	207
		3,332

The total acres required for the production of the above "ground-provisions" are 3,332. It would be easily feasible for the smaller farmers of British Guiana to increase the acreage under "ground-provisions" to say 17,800 acres and on these to produce the various products which are at present imported.

On the other hand the export of rice during 1924 was 4,470 tons, the produce at average rates of yield of 6,666 acres. It is evident that the transfers of agricultural foodstuffs are very greatly in favour of British Guiana. Should British Guiana cease to be a reliable market for the West Indian Islands' food-products the planters and farmers in those islands could not be expected to avail themselves of the Colony's production of its staple—rice.

AREA UNDER AGRICULTURAL PRODUCTS.

35. The following Table shows the number of acres under cultivation in 1924 with the more important products in the three counties. The records have been collated from the returns made to the District Commissaries or to the District Agricultural Officers by cultivators. As in former years, the figures are minimum ones, many cultivators being determined not to give reliable information regarding the acreages of their lands under cultivation and more especially accurate returns of the crops obtained therefrom owing to their idea that the statistics are required for purposes of future taxation instead of as guides as to the Colony's Agricultural progress :—

TABLE XXVII.

Counties.	Nature of Crops and Number of Acres at 31st December, 1924.								
	Oases.	Rice.	Coconuts.	Cacao.	Coffee.	Rubber.	Limes.	Ground Provisions.	Total.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
County of Berbice	19,030	15,797	3,648	30	11	40	411	3,311	42,278
County of Demerara	35,155	6,335	14,300	1,630	3,055	1,039	84	6,613	68,212
County of Essequibo	3,005	7,274	7,253	258	2,638	576	216	4,520	25,800
Total in Acres	57,190	29,406	25,201	1,918	5,765	1,655	711	14,444	136,290

36. In Table XXVIII. are given the returns of the acres under various products during the years 1905, 1910, 1915, 1920, 1921, 1922, 1923 and 1924. This consolidated form probably gives a closer insight into the extension or contraction of the cultivation of varied kinds of agricultural products than did the more elaborate ones published in the earlier reports.

TABLE XXVIII.

ACREAGE UNDER CULTIVATION WITH VARIOUS PRODUCTS, 1905 TO 1924.

Counties.	Year.	Nature of Crops and Number of Acres in each of the Years 1905, 1910, 1915, 1920, 1921, 1922, 1923 and 1924.								
		Sugar.	Rice.	Coconuts	Cacao.	Coffee.	Rubber.	Limes.	Maize, Plantains, &c., and Ground Provisions.	Total area under cultivation.
Berbice	1905	18,251	13,721	4,104	2	87	...	...	6,763	42,933
	1910	19,295	12,948	5,009	99	51	30	143	5,932	43,587
	1915	22,102	29,516	7,081	64	40	603	439	5,430	65,275
	1920	19,464	32,401	5,823	86	24	481	398	4,515	63,192
	1921	19,210	23,283	7,002	49	18	545	401	6,112	56,620
	1922	21,073	13,933	5,084	54	11	572	497	4,000	45,024
	1923	19,350	16,460	4,920	161	23	503	324	2,500	44,240
	1924	19,030	15,797	3,648	30	11	40	411	3,311	42,278
Demerara	1905	49,956	5,437	1,647	1,754	224	...	...	10,437	69,455
	1910	46,388	7,429	2,431	1,555	1,941	579	...	9,307	69,630
	1915	47,427	10,400	5,597	1,856	2,620	2,229	61	10,543	80,733
	1920	43,248	14,026	10,738	1,455	2,579	1,246	78	7,004	80,369
	1921	40,373	26,097	12,288	885	2,455	1,196	210	5,791	89,300
	1922	36,868	22,750	11,460	1,080	1,830	650	47	4,989	79,665
	1923	33,080	10,824	10,180	1,497	1,673	561	80	5,290	63,196
	1924	35,155	6,335	14,300	1,630	3,056	1,039	84	6,613	68,212
Essequibo	1905	6,395	4,948	789	227	621	...	...	2,276	15,255
	1910	7,634	8,355	2,123	264	451	311	413	2,230	21,781
	1915	6,933	10,172	5,178	276	1,258	1,233	473	2,266	27,789
	1920	6,818	8,819	7,801	268	1,499	457	525	3,904	30,091
	1921	3,832	6,531	7,031	242	2,557	1,072	491	4,474	26,230
	1922	2,820	12,390	10,059	237	2,400	1,111	116	3,950	33,083
	1923	2,700	7,681	7,870	245	2,396	1,016	396	4,134	26,438
	1924	3,005	7,274	7,253	258	2,698	576	216	4,520	26,509

37. The following are the annual summaries of the total acreages under cultivation during the years 1903, 1908, 1913, 1918, 1919, 1920, 1921, 1922, 1923, and 1924:—

TABLE XXIX.

ACREAGE UNDER CULTIVATION WITH VARIOUS PRODUCTS.

	Year.	Annual Summaries of the Acreages under cultivation during the years 1903, 1908, 1913, 1918, 1919, 1920, 1921, 1922, 1923 and 1924.								
		Sugar Cane.	Rice.	Coconuts.	Cacao.	Coffee.	Rubber.	Limes.	Maize, Plantains, etc., and Ground Provisions.	Total area under cultivation.
British Guiana	1903	78,860	17,500	3,950	1,530	1,390	...	...	15,748	118,978
do.	1908	74,870	29,746	8,730	2,290	1,502	583	...	20,184	137,905
do.	1913	72,685	33,889	14,177	1,863	3,166	4,018	941	17,580	148,319
do.	1918	73,565	60,432	25,882	1,997	5,158	3,981	1,331	21,959	194,325
do.	1919	70,876	61,400	25,882	2,147	5,125	4,042	1,335	18,192	188,999
do.	1920	69,532	55,246	24,453	1,948	5,052	2,813	1,058	16,583	176,853
do.	1921	63,420	55,911	25,321	1,176	5,030	2,813	1,109	16,378	172,151
do.	1922	60,761	49,073	26,608	1,371	4,241	2,333	660	12,930	157,772
do.	1923	57,814	34,965*	22,970	1,903	4,086	2,080	800	11,924	136,552
do.	1924	57,190	29,406	25,201	1,918	5,765	1,655	711	14,444	136,290

* Rice reaped—Total Spring and Autumn crops ...38,715 acres.

38. In connection with the foregoing returns of area under various cultivations, the following Tables show the average annual acreage and average annual exports of products during successive quinquennial periods and in 1923 and 1924:—

TABLE XXX.

SUGAR-CANE AND SUGAR.

PERIODS.	SUGAR-CANE.		SUGAR.
	No. of Acres (British) under cultivation.		Tons of Sugar exported.
1859-1863	No Records		59,000
1864-1868	..		75,330
1869-1873	..		81,700
1874-1878	..		99,940
1879-1883	81,270		103,860
1884-1888	80,690		113,820
1889-1893	79,630		110,900
1894-1898	70,640		101,620
1899-1903	74,170		106,260
1904-1908	75,580		110,830
1909-1913	72,640		94,820
1914-1918	76,672		106,980
1919-1922	65,020		89,782
1923	57,814		83,166
1924	57,190		85,896

TABLE XXXI.

COCONUTS, COPRA AND COCONUT OIL.

PERIODS.	No. of Acres (British) under cultivation.	No. exported to nearest hundred.	Copra, lbs.	Coconut Oil, gallons.
1859-1863	No records	488,700	...	...
1864-1868	..	588,390	...	...
1869-1873	..	669,200	...	...
1874-1878	..	1,211,200	...	...
1879-1883	..	866,200	...	...
1884-1888	..	317,400	...	...
1889-1893	..	133,000	...	...
1894-1898	..	4,400	...	...
1899-1903	..	34,800	...	...
1904-1908	7,040	314,400	...	...
1909-1913	12,460	1,034,200	113,400	7,500
1914-1918	21,014	1,807,500	214,380	23,060
1919-1922	25,573	2,970,000	289,800	20,230
1923	22,970	2,659,000	941,000	26,621
1924	25,201	1,559,800	1,848,896	21,804

TABLE XXXII.

CACAO.

PERIODS.	No. of Acres (British) under cultivation.	Cacao exported lbs.	Raw Cacao and prepared Cacao imported lbs.
1884-1888	No records	5,000	102,200
1889-1893	..	16,000	116,000
1894-1898	..	84,600	28,000
1899-1903	..	95,900	10,470
1904-1908	1,940	73,100	20,590
1909-1913	2,140	54,500	20,970
1914-1918	2,114	34,670	54,020
1919	2,147	9,520	102,580 (1)
1920-1922	2,020	(1920) 24,152	(1920) 179,120 (2)
1923	1,903	none	189,063 (3)
1924	1,918	..	188,373 (4)

(1) Including 29,336 of raw cacao.

(2) .. 73,950

(3) .. 23,596

(4) .. 27,940

TABLE XXXIII.

COFFEE.

PERIODS.	No. of Acres (British) under cultivation.	Coffee exported lbs.	Coffee, raw and prepared, imported lbs.
1884-1888	No records	1,640	219,000
1889-1893	"	7,030	250,000
1894-1898	"	5,600	262,700
1899-1903	"	5,580	284,160
1904-1908	1,370	17,900	181,370
1909-1913	2,660	115,200	83,200
1914-1918	4,713	342,190	39,160
1919	5,125	936,540	2,380 (1)
1920	5,032	407,900	7,930 (2)
1921	5,030	405,104	295 (3)
1922	4,240	308,640	1,779 (4)
1923	3,916	535,136	5,248 (5)
1924	5,765	513,072	14,917 (6)

- (1) Including 1,020 lbs. raw coffee.
(2) " 6,750 lbs. "
(3) " 24 lbs. "
(4) " 1,439 lbs. "
(5) All raw coffee.
(6) Including 14,620 lbs. raw coffee.

LIVE-STOCK.

39. The returns of the Agricultural Census gives the number of cattle in the Colony as 113,315, of these 54,315 were on the coastlands and 59,000 in the hinterland.

The distribution of live-stock according to the agricultural Census Returns in the Colony is shown in the following Table:—

TABLE XXXIV.

County or District.	1924.							
	Horses.	Mules.	Donkeys.	Cattle.	Buffaloes.	Goats.	Sheep.	Swine.
Demerara	452	1,651	2,132	17,932	98	2,803	4,425	4,066
Essequibo	64	127	914	9,504	67	1,810	1,299	1,709
Berbice	280	522	3,122	26,879	4	5,179	10,261	6,814
Hinterland	1,000	9	8	59,000	6	...	200	300
Totals	1,796	2,309	6,176	113,315	175	9,792	16,185	12,889

40. The following Table shows the increases and the decreases in the various kinds of live-stock reported as on the frontlands of the Colony since 1914:—

TABLE XXXV.

	1914.	1916.	1918.	1920.	1922.	1923.	1924.
Horses	1,010	1,016	1,002	941	1,050	800	796
Mules	2,000	2,390	2,359	2,105	1,730	1,790	2,300
Donkeys	6,000	6,466	5,332	7,106	6,160	5,440	6,168
Cattle	79,500	93,264	77,108	85,938	74,350	56,670	54,315
Buffaloes	100	382	176	174	180	264	169
Goats	14,800	14,766	11,236	11,250	8,310	7,940	9,792
Sheep	19,700	22,805	20,611	23,202	15,770	15,130	15,985
Swine	11,600	12,450	12,532	17,401	12,500	11,134	12,539

It is certain that from 1916 the number of cattle on the frontlands and on the northern savannahs has been very materially underestimated by the cattle-farmers and that such supplying of falsified returns has very greatly increased since 1920.

As has been the case for several years the live-stock of the Colony was practically free from infectious diseases during 1924.

41. The numbers of imported male live-stock belonging to the Board of Agriculture on the 1st January and the 31st December, 1924, were:—

TABLE XXXVI.

	BULLS.			RAMS.	Donkeys.	Horses.
	Shorthorn.	Guernsey.	Holstein.	Southdown.		
On hand 1st January, 1924	2	1	1	1	1	1
Imported 1924	...	...	1	...	2	...
Died during 1924	...	...	...	...	3	...
On hand 31st December, 1924	2	1	1	1	3	1

42. The following shows the places where the Board's stallion "Waterbaas" was stationed and the number of services performed by him during the year:—

TABLE XXXVII.

	From	To	No. of services other than to Stud Farm Mares.
Botanic Gardens, Georgetown	3rd January, 1924	29th October, 1924	3

43. The following shows the places where the Board's stallion donkey "Greatland Junior" was stationed and the number of services performed by him during the year:—

TABLE XXXVIII.

	From	To	No. of Services.
Botanic Gardens	1st January, 1924	31st December, 1924	25

44. *Bulls.*—During the year the bulls were stationed as under:—

- Guernsey "Rooseveldt II.," Botanic Gardens.
- Shorthorn "Duke," H.M. Penal Settlement.
- Shorthorn "Francis," Onderneeming and Botanic Gardens.
- Holstein "Texas Wonder," Botanic Gardens.

The bulls were not in much demand and during the period under review the fees earned by them amounted only to \$11.40. Many services were given free to Government cows.

Swine.—Owing to there not being any demand for high bred pigs during late years, none have been imported since 1918.

BOARD OF AGRICULTURE.

45. The following were some of the more important matters dealt with by the Board:—

Appointments.—Sir Wilfred Collet, K.C.M.G., and the Hon. C. C. Clementi, C.M.G., M.A., were appointed Honorary Members of the Board; Messrs. E. M. Walcott, F.B., and R. Strang ordinary members; and the Economic Biologist a *ex officio* member.

Deaths.—During the year Mr. John F. Waby, I.S.M., formerly Head Gardener, Botanic Gardens, from 1878 to 1913, and for some years a member of the Board, died.

Licences to kill wild Birds.—Licences to kill wild birds were granted to Viscount Dunsford, Messrs. Manoel A. de Freitas and C. G. Young, and to Dr. H. L. Libby. Permission was granted to Mr. H. L. Humphrys to export six bird-skins.

46. *Agricultural Shows.*—The Director of Science and Agriculture, as Chairman of the Board of Agriculture, has at the time of writing this report the following balances with accrued interest in the Post Office Savings Bank in trust for the purpose of County Agricultural Exhibitions :—

County.	Capital.	Interest.	Total.
Demerara	\$ 269 05	\$ 8 04	\$ 277 09
Berbice	298 69	8 88	306 57

Shows were held during the year by :—

- (a) The Buxton and Friendship Farmers' Association on the 19th August.
- (b) The West Bank Farmers' Association on the 20th October.
- (c) The Mahaicony Farmers' Association on the 4th November. This was a very satisfactory Show.
- (d) A farmers' competition was held on the East Coast, Demerara, under the auspices of the Victoria-Belfield Agricultural Society.

The following Agricultural Associations were affiliated to the Board for the year 1924 :—

British Guiana Farmers' Conference.
 Mahaicony Farmers' Association.
 No. 1 Canal Farmers' Association.
 No. 2 Canal Farmers' Association.
 West Bank Farming Association.
 Victoria-Belfield Agricultural Society.
 County of Essequibo Agricultural Association.
 Beterverwagting and Triumph Farmers' Association.
 Buxton and Friendship Farming Association.

Importation of Stock.—During the year the Board imported.—

Two stallion donkeys.
 Two blackface Shropshire rams.
 One Holstein bull.
 Two Holstein heifers.
 Eight Plymouth Rock fowls—two cockerels and six pullets.
 Four tested queen bees for Onderneeming Farm.

Grading of Rice and Coconuts.—A Joint Committee consisting of representatives from the Board of Agriculture and the Chamber of Commerce reported on the subject of grading rice and coconuts for export, that such grading although desirable is not at the present feasible.

African Oil Palms.—The two lots Nos. 26 and 27 of Plantation Clonbrook planted with African Oil palms were handed over to the Department of Lands and Mines. The growth of these palms has been very far from satisfactory whilst their yields of oil seeds are almost negligible.

Registration of Veterinary Surgeon.—Mr. A. M. Fulton, M.R.C.V.S., was registered as a Veterinary Surgeon.

47. *The Journal of the Board.*—Four issues of the Journal appeared during the year—Volume XVII. Nos. 1, 2, 3 and 4. The circulation of these numbers was :—

	Local.	Foreign.	Total.
January, 1924 ...	710	189	899
April, 1924 ...	930	191	1,121
July, 1924 ...	951	194	1,145
October, 1924 ...	931	197	1,128

The cost of publication of these four issues was \$679.64. The popularity of the Journal both in British Guiana and abroad steadily increased.

Wild Birds Ordinance.—A Committee appointed to consider amendments to the Schedules of the Wild Birds Protection Ordinance recommended the following Orders which were adopted by the Board of Agriculture :—

1. "Whereas it is enacted by Section 8 (2) of the Wild Birds Protection Ordinance, 1919, that to the Board of Agriculture may alter the period hereinbefore declared to be the close season and may declare what period shall be the period to be observed as the close season with respect to any or all of the Wild Birds specified or to be specified in the Second Schedule of the Ordinance, the Board hereby declares that the period to be observed as the close season shall be from the 1st April to the 1st August, with the exception of Ibises, (curri-curri and allies) (Ibididæ) for which the close season shall be from 1st January to the 1st August."

"Whereas it is enacted by Section 8 (1) of the Wild Birds Protection Ordinance, 1919, that the Board of Agriculture may from time to time, and as often as occasion may require; by Order declare that the name or names of any bird or birds shall be added to or expunged from the list of birds contained in either of the Schedules to the Ordinance, the Board hereby declares that the following names of birds shall be added to the First Schedule.

"Spur Wings (Parridæ)
"Storks, (Negro Cop, Heori and allies)
"(Ciconiidæ)

"Whereas it is enacted by Section 8 (1) of the Wild Birds Protection Ordinance, 1919, that the Board of Agriculture may from time to time, and as often as occasion may require, by Order declare that the name or names of any bird or birds shall be added to or expunged from the list of birds contained in either of the Schedules to the Ordinance, the Board hereby declares that the following names of birds shall be expunged from the Second Schedule.

"Parrots and Macaws (Psittacidæ)
"Ducks (Anatidæ)
"Plovers and Snipes (Charadriidæ)

"and that after the words Pigeons (Columbidæ) the words except in rice fields and their vicinity shall be added."

4. "Whereas it is enacted by section 8 (1) of the Wild Birds Protection Ordinance 1919, that the Board of Agriculture may from time to time, and as often as occasion may require, by Order, declare that the name or names of any bird or birds shall be added to or expunged from the list of birds contained in either of the Schedules to the Ordinance, the Board, after expunging the names of certain birds from the Second Schedule, hereby gives notice that the Second Schedule shall be as follows :—

- "Caraw (Aramidae)
- "Ibis (curri-curri and allies (Ibididae)
- "Maams and Tinamus (Tinamidae)
- "Pigeons (Columbidae), except in rice fields and their vicinity.
- "Powis and Marudis (Craoidae)
- "Spoonbills (Plataleidae)
- "Thick-kneed Plovers (Oedicnemidae)
- "Tooth-billed Partridges, (Daraguara and allies Odontophoridae.)
- "Warracabas (Trumpet Birds and allies)
- "(Prophidae.)"

AGRICULTURAL APPRENTICES.

48. On January 1st, 1924, there were sixteen apprentices, and one journeyman. As these were in excess of the accommodation probationers were not admitted during the year. One journeyman, Mr. John Mc. Kenzie Crawford, left the colony on the 19th April, 1924, to take up an appointment in Africa.

Nine apprentices completed their indentures during the year; of these, two became journeymen and remained at the Botanic Gardens, one was appointed Clerical Assistant at the Botanic Gardens, four left to seek employment elsewhere and two were dismissed for deliberate disobedience.

Certificates of competency were handed to the following five apprentices by His Excellency the Governor at the meeting of the Board of Agriculture held in the Court of Policy Hall during the period under review:—

Kenneth Wallingford Liverpool.
 Walter Alonza Scott.
 Patrick Benjamin Franklin.
 Kinsell Christopher Jerrick
 Lindon Hobland Hope.

The number of lads in training at the Botanic Gardens and Experimental Fields on the 31st December, 1924, was nine—two journeymen and seven apprentices.

The total expenditure on the apprenticeship scheme during the year amounted to \$3,299.11 as compared with \$4,609.54 in the previous year. Of the expenditure in 1924, \$1,058.84 and \$793.62 were recouped respectively as the value of the labour of the lads and as payment from them for their dietaries, thus reducing the cost of the scheme to \$1,446.65.

The work done by the apprentices showed signs of general improvement, and the duties that they were called upon to perform were carried out satisfactorily.

DISTRICT GARDENS.

49. The following seven Gardens have been in operation since 1915; the attendances in 1920, 1921, 1922, 1923 and 1924 being:—

TABLE XXXIX.

	1920.	1921.	1922.	1923.	1924.
Bourda, Georgetown ...	6,285	5,871	3,557	4,038	4,123
Houston, East Bank, Demerara ...	3,228	2,539	1,516	2,137	3,148
Belfield, East Coast, Demerara ...	2,312	1,968	1,841	2,780	2,827
Den Amstel, West Coast, Demerara ...	2,532	2,049	1,525	1,958	1,678
Stanleytown, New Amsterdam, Berbice ...	1,665	1,642	1,510	1,595	1,103
Wakenaam, Essequibo ...	2,148	1,610	1,397	1,951	1,664
Suddie, Essequibo ...	2,525	2,629	1,598	1,934	1,789
Total attendances ...	20,695	18,108	12,944	16,393	15,330

The numbers of attendances were not satisfactory although the District Gardens have greatly improved and good work is being done in them.

The costs of the maintenance of the Gardens during 1924 were \$1,555.94 as compared with \$1,511.79 in 1923.

DISTRICT AGRICULTURAL INSTRUCTORS.

50. The following are the part time District Agricultural-Instructors:—

Mr. J. M. Antrobus—West Bank, Demerara River, and Canal Polder District.

Mr. C. Humphreys, East Bank, Demerara River District.

Mr. J. E. Wilson—Essequibo Islands District.

Mr. R. R. Pasea—Essequibo Coast District.

Mr. D. D. Haynes—Mahaica-Mahaicony District.

Mr. J. M. Cush—Berbice River District.

Mr. R. R. Ross—West Coast, Berbice District.

Mr. T. A. Archer—Parika and Leguan District.

Mr. D. W. Fingal—Corentyne District.

The vote for District Agricultural Instructors for 1924 was \$6,636. The majority of the instructors show much interest in their work, the results of which should in time prove beneficial to the smaller farmers.

THE GOVERNMENT CHEMICAL LABORATORY.

51. During the year six thousand four hundred and forty-six samples were sent officially for analysis by various departments and authorities.

Useful work was done under the Food and Drugs Ordinance, three thousand six hundred and eighty samples having been analysed of which three hundred and six were returned as adulterated, equivalent to a percentage of 8.3. This shows that the rates of freedom from adulteration found among the samples received including milk, were satisfactory.

During the period under review the fines inflicted by the Magistrates for breaches of the Ordinance amounted to four thousand six hundred and twenty-one dollars and eighty-six cents. Milk vendors alone were responsible for four thousand five hundred and twenty dollars and forty-two cents. The fines for adulterated samples taken on Sundays and Public Holidays amounted to one thousand five hundred and eighty-six dollars and sixty-six cents.

There were 23 manufactories of Aerated Waters at work in the Colony during 1924, the equipment and the products of which are controlled by this Department by virtue of clause 12 of the Sale of Food and Drugs Ordinance, 1918. The various factories have been repeatedly inspected during the year and are all in good condition, several of them being remarkable for the excellent sanitary conditions under which they are working and for the high quality and purity of their products. It is, however, to be regretted that several of these factories persist in the abuse of saccharine in place of pure sugar syrup, for sweetening their "soft drinks."

BOTANIC GARDENS.

52. The report of the Superintendent shows that the Botanic Gardens have received careful attention during the period under review. They were in a very satisfactory condition except for the prevalence of the pest *Antedesma venosum*.

In July 1904 a packet of seeds of *Antedesma venosum* was received from the Botanic Gardens, Durban, Natal, no indication being given to us that such seeds were seeds of one of the most destructive pest-plants in the world. In complete ignorance of the character of this plant, the then Government Botanist, Mr. A. W. Bartlett, allowed the late Head Gardener Mr. Waby to raise plants from them and to set out

the young plants in various parts in the Gardens. These plants first flowered and fruited in 1907. The Head Gardener found that the fruit was edible and capable of being made into a jam. He appears to have extended the cultivation of the plant. A further supply of these seeds were received from Botanic Gardens, Durban, in August 1912, but the very rapid extension of the plant in the Botanic Gardens had by then received attention. In 1915-1916 the Botanic Gardens authorities realised that a most serious pest had been introduced into the Botanic Gardens. Attention was drawn to this not only in the annual reports but at meetings of the Board of Agriculture and gardeners, planters and farmers were warned to guard against the introduction of weed into their cultivations. It has since proved practically impossible to control its extension in the Botanic Gardens, where it would now require an expenditure of many thousands of dollars in an endeavour to eradicate it. Everything we could think of has been done with the object of restricting its spread but this is a matter of the utmost difficulty as birds feed on its fruit and hence spread its seeds, whilst it extends by means of roots of very great length, often in excess of 50 feet, which throw up shoots wherever they traverse land which is not thickly covered with grass. It has now spread to the La Repentir Cemetery, to various fields in the vicinity of the Botanic Gardens, to Sophia Sugar Experiment Station and to Plantation Ogle. All that we have been able to learn about it from Natal is that it is a pest impossible to control and that it has destroyed there many thousand acres of pasture land.

The various minor gardens in Georgetown were well looked after during the year, and were in good order.

The New Amsterdam Garden was kept in excellent order during the year.

The Municipal Gardens, Georgetown, were maintained in good order under the supervision of the skilled horticulturists of this Department.

There was a marked increase in the demand for plants of economic importance, 4,990 cacao, coffee and other plants of economic value being sold during the year as compared with 3,512 in 1923. The revenue from sales of economic plants at the Botanic Gardens including the receipts for the sale of 12,246 lbs. of seed padi, 5 white Leghorn fowls and 856 eggs, was \$496.07. The receipts for ornamental plants, flowers, etc., amounted to \$547.62.

I have the honour to be,

Sir,

Your obedient Servant,

J. B. HARRISON,
Director.

The Honourable
THE COLONIAL SECRETARY.
1st September, 1925.

**REPORTS OF THE DEPARTMENT OF SCIENCE AND AGRICULTURE
FOR THE YEAR ENDED 31st DECEMBER, 1924.**

APPENDIX I.

REPORT OF THE GOVERNMENT ANALYST.

APPENDIX I.

REPORT OF THE GOVERNMENT ANALYST FOR THE YEAR ENDED
31ST DECEMBER, 1924.

SIR,

I have the honour to report that during the year under review six thousand five hundred and fifty-five samples were received at the Government Laboratory for examination. In the preceding year six thousand six hundred and twenty-six samples were received.

2. Six thousand four hundred and forty-six of the samples were sent officially by various Departments and Authorities and were received from the following:—

1. The Comptroller of Customs	...	...	1,878
2. The Inspector General of Police	...	...	2,279
3. The Chief Commissary	...	...	243
4. The Government Medical Officer of Health	...	...	592
5. The Municipal Medical Officer of Health	...	...	562
6. The Chairman, Poor Law Board	...	...	14
7. The Director, Public Works Department	...	...	1
8. The Director, Science & Agriculture	...	...	56
9. The Surgeon General	...	...	3
10. The Medical Officer—Infant Welfare & Maternity Clinic...	...	...	12
11. The Resident Surgeon, Public Hospital	...	...	4
12. The Board of Agriculture	...	...	802
			<hr/>
			6,446
			<hr/>

3. The number of private samples analysed was one hundred and nine.

4. The following is an abstract of the numbers of official samples submitted to the Government Laboratory since its re-establishment in 1879:—

1880	...	...	70
1890	...	...	900
1900	...	...	3,486
1910	...	...	4,464
1920	...	...	3,878
1921	...	...	4,385
1922	...	...	5,066
1923	...	...	6,457
1924	...	...	6,446

5. The samples received during 1924 may be classified as under:—

1. Viscera (including suspected poisoning)	...	...	3
2. Food & Drink (sent for fiscal purposes)	...	...	282
3. Food and Drink (sent for non-fiscal purposes)	...	...	3,429
4. Petroleum. Petrol, etc.	...	...	173
5. Drugs, Oils, Varnishes, etc	...	...	122
6. Tobacco (fiscal)	...	...	445
7. Sugar and Molasses	...	...	24
8. Manures	...	...	1
9. Soils...	...	...	10
10. Waters	...	...	19
11. Malt Liquors	...	...	3
12. Aerated Drinks (including materials for making same)...	...	...	42
13. Hydrometers, Polariscopes & Thermometers	...	...	176
14. Wines and Liqueurs	...	...	682
15. Spirits (Customs Department)	...	...	151

16. Coloured Rum, Colouring matter, Sediment (Excise Department) ...	...	41
17. Illicitly Distilled Spirits ...	...	14
18. Bitters and Cordials ...	...	10
19. Methylated Spirits (and materials for making same) ...	...	53
20. Rocks & Minerals (including Bauxite) ...	...	27
21. Opium ...	...	3
22. Sugar Canes (Sophia Experiment Station) ...	...	802
23. Bay Rum ...	...	25
24. Miscellaneous ...	...	18
Total ...	...	6,555

6. *Substances including Viscera suspected to contain Poison*:—Three cases of alleged poisoning entailing the examination of seven exhibits were reported on during the year under review.

The following table illustrates the position regarding such work during the years 1911–1924:—

YEAR.	NUMBERS.				POISONS DETECTED.														
	Cases investi- gated.	Deaths.	Exhibits sub- mitted.	Cases in which poisons were found.	Tartar Emetic.	Ground glass.	Strychnine.	Arsenic.	Datura (Atropine).	Potassium Cyanide.	Corrosive Sublimate.	Opium.	Carbolic acid.	Sulphuric acid.	Nicotine.	Morphia.	Mercuric Iodide.	Mercury (in fine state of divi- sion).	
1911...	4	0	5	3	1	...	1	1	...	...	...	...	...	...	...	...	...	...	...
1912...	5	1	10	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
1913...	5	3	9	4	1	...	1	...	...	1	...	...	...	...	...	...	...	...	...
1914...	5	2	54	4	...	...	...	...	...	1	2	...	...	...	...	...	...	...	...
1915...	6	3	13	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
1916...	4	2	9	2	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...
1917...	6	...	7	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
1918...	2	2	5	2	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...
1919...	3	2	3	2	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...
1920...	6	1	9	2	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...
1921...	11	3	31	7	...	...	1	...	...	1	2	...	1	1	...	...	1	...	...
1922...	8	1	15	6	...	1	...	...	1	...	2	...	1	1	...	...	...	...	...
1923...	4	2	12	3	...	1	...	...	...	1	...	...	...	...	...	...	...	...	1
1924...	3	1	7	3	...	...	...	...	1	...	2	...	...	...	...	...	...	...	...
	72	23	170	40	2	2	4	2	4	3	9	5	3	2	1	1	1	1	1

As will be seen from the above table there was a further decrease in cases of suspected poisoning in the Colony as compared with the previous three years. During the year one person died of corrosive sublimate (mercuric chloride) poisoning.

7. *Articles of Food and Drink*.—Three thousand six hundred and eighty samples of food and drink other than spirituous liquors submitted for examination for non-fiscal purposes were examined under the Sale of Food and Drugs Ordinance. Of these 306 were returned as adulterated, this being at the rate of 8.3 per cent. There has been a slight increase in the rate of adulteration of milk as shown by the following table:—

Year.	Samples submitted.	Per cent. returned as adulterated.		
		All Samples.	Milk Samples.	Samples other than Milk.
1894	308	54.5	42.1	60.8
1904	904	24.5	26.0	7.5
1914	1,189	18.4	12.8	16.5
1916 (9 months)	1,320	17.7	18.2	16.0
1916	1,917	16.9	18.2	12.5
1917	1,727	14.8	15.4	6.0
1918	1,818	14.6	15.4	6.2
1919	1,792	11.8	12.1	9.5
1920	1,898	18.1	19.7	8.1
1921	2,955	8.7	9.6	8.0
1922	3,964	8.4	8.6	5.2
1923	4,101	7.0	7.4	3.8
1924	3,680	8.3	8.8	3.4

The articles examined during the year under review were as follows:—

Nature of Foodstuff examined.	No. examined.	Returned as adulterated.	
		Number.	Per cent.
Milk	3,302	293	8.8
Butter	104	2	1.9
Ghi and Phalkaghi...	71	5	7.0
Olive Oil	22	1	4.5
Coffee	35	...	...
Vinegar	106	5	4.7
Soda Water	13	...	...
Ginger Beer	...	...	...
Lemonade	26	...	...
Mauby	...	...	...
Camphorated Oil	2	...	...
Totals	3,680	306	8.3

The above table shows that the rates of freedom from adulteration found among the samples received, including milk, were satisfactory.

During the period under review the fines inflicted by the Magistrates for breaches of the Ordinance amounted to four thousand six hundred and twenty-one dollars and eighty-six cents. As in previous years the greater number of convictions were for the sale of adulterated milk, and the fact that the vendors of such milk pay the heavy fines inflicted and continue in their occupation shows the very profitable nature of their fraud, a fraud fraught with danger to consumers of milk, especially infants and sick persons. It is evident that only by the constant and stringent administration of the Sale of Food and Drugs Ordinance can the sale of adulterated milk be kept under satisfactory control. The profitable nature of the frauds of removing butter fat from the milk and by adding water to it is shown by the fact that during the year under report the vendors of sophisticated milk were able to pay four thousand five hundred and twenty dollars and forty-two cents. The fines for adulterated samples taken on Sundays and Public Holidays amounted to one thousand five hundred and eighty-six dollars and sixty-six cents.

8. Eighty-five samples of petroleum for illuminating purposes were analysed under the petroleum and Inflammable Liquids Ordinance, 1916, for the Comptroller of Customs, and were all found to be above the legal standard (Abel Pensky, 85 degrees Fah.). Three samples of petroleum were received from the Inspector General of Police, the flash points of which were found to be below the legal standard. These latter were reported as "Dangerous Petroleum" under Ordinance 20 of 1916.

9. *Drugs, Oil and Varnishes, etc.*—Of these thirty medicinal tinctures were submitted for analysis to determine the percentage of alcohol present and their correspondence to the limits of the British Pharmacopia.

10. *Wines, Spirits and Liqueurs.*—Eight hundred and thirty-three samples of imported wines, spirits and liqueurs were examined to determine their alcoholic strength. Forty-one samples of rum, sediment from rum vats, wash and colouring matter were similarly submitted. Fourteen samples of spirits suspected to be the produce of illicit stills were examined to determine their nature and were regarded as “Bush Rum.”

11. *Hydrometers, Polariscopes and Thermometers.*—One hundred and seventy-two hydrometers used for excise purposes have been compared with the standard instrument generally with satisfactory results. Two polariscopes were standardised, and two thermometers were tested and the corrections given.

12. *Opium.*—Three samples alleged to contain opium were sent for examination on account of a suspected breach of the Opium Ordinance.

13. *Aerated Waters.*—Thirty samples of aerated waters and mauby were examined under this Ordinance. There has been a great improvement in the quality of the locally made aerated waters due to the conditions prescribed by the Governor-in-Council as to the working and otherwise of manufactories of aerated or artificial mineral waters. These conditions are cited as the Aerated Waters Manufactory Conditions, 1923, and are under section 12 (1) of the Sale of Food and Drugs (Consolidation) Ordinance, 1918. All the aerated water factories now have efficient means of filtering the water used in the preparation of the various drinks.

14. *Sugar Canes.*—Eight hundred and two were examined as compared with five hundred and seventeen in the preceeding year.

15. *The Receipts of the Laboratory.*—During the period under review the receipts of the Laboratory from the fees paid into the Treasury by private persons and fines for examinations made for them amounted to two hundred and thirty-two dollars and fifty cents. The Treasury also received four thousand six hundred and twenty-one dollars and eighty-six cents as fines inflicted under the Sale of Food and Drugs Ordinance, the total receipts due to the work of the Laboratory thus amounting to four thousand eight hundred and fifty-four dollars and thirty-six cents.

W. FRANCIS,
Deputy Government Analyst.

THE DIRECTOR OF SCIENCE AND AGRICULTURE.

**REPORTS OF THE DEPARTMENT OF SCIENCE AND AGRICULTURE
FOR THE YEAR ENDED 31st DECEMBER, 1924.**

APPENDIX II.

REPORT ON THE BOTANIC GARDENS AND THEIR WORK.

APPENDIX II.

BOTANIC GARDENS,
GEORGETOWN, DEMERARA,
28th February, 1925.

SIR,

I have the honour to submit the following report on the working of the Botanic Gardens in Georgetown and the Public Gardens in New Amsterdam, Berbice, for the year ended 31st December, 1924.

BOTANIC GARDENS, GEORGETOWN.

Ornamental Section.

2. The average number of regular labourers employed during 1924 was 40. This does not include extra hands taken on when urgent works had to be done, such as burning earth, digging trenches, etc. During the year a considerable number of applications were received for employment but the applicants almost invariably refused to work for the pay offered. With few exceptions, however, the same employees were regularly employed throughout the year. The amounts expended under the voted sub-heads for the year were:—

Botanic Gardens Maintenance ...	...	\$1,958 50
Irrigation and Drainage ...	...	747 67
Purchase, production and distribution of seeds and plants ...	...	2,491 20
Carts, Harness, Tools and Implements ...	...	515 63

3. One consignment of seeds was received during the year, comprising both vegetable and flower. These were distributed to the various gardens including the District Agricultural school gardens.

4. During the year no plants were received from abroad.

5. The following is a list of trees which flowered during the year under review and the months of their flowering:—

Erythrina indica, *Melaleuca Leucadendron*, *Brownea rosea*, *Jacaranda ovalifolia*, *Gliricidia maculata*, *Cordia alba*, *Lagerstroemia Flos-reginae*, *Mimusops globosa*, *Acacia arabica*, *Lonchocarpus violaceus* (January). *Kigelia pinnata*, *Barringtonia racemosa*, *Triplaris surinamensis*, *Leptospermum pubescens*, *Erythrina indica* var. *alba*, *Spathodea campanulata*, *Peltophorum ferrugineum* (February). *Rhus rufa*, *Platymiscium platystachyum*, *Eugenia magnifica*, *Acacia Smithiana*, *Pachira aquatica*, *Sterculia foetida*, *Poinciana regia*, *Erythrina vlissegensis*, *Mangifera indica*, *Cassia grandis*, *Cassia javanica*, *Bombax Ceiba*, *Carapa guianensis*, *Pithecolobium Saman*, *Caesalpinia paucijuga*. (March). *Acacia arabica*, *Erythrina glauca*, *Tecoma spectabilis*, *Swietenia macrophylla*, *Myroxylon Pereirae*, *Cordia alba*, *Kigelia pinnata*, *Gliricidia maculata*. (April). *Albizzia Lebbek*, *A. procera*, *Azelia spicata*, *Terminalia Arjuna*, *Tecoma spectabilis*, *Cassia calliantha*, *Monodora tenuifolia*, *Mangifera indica*, *Atalantia monophylla*, (May). *Jacaranda ovalifolia*, *Musa Ensete*, *Leptospermum pubescens*, *Sterculia carthaginensis*, *Sterculia rupestris*, *Cassia siamea*, *Lonchocarpus latifolius*, *Peltophorum ferrugineum*, (June). *Melaleuca Leucadendron*, *Spathodea campanulata*, *Pachira aquatica*, *Lagerstroemia macrophylla*, (July). *Acacia arabica*, *Dillenia speciosa*, *Swietenia macrophylla*, *Pterospermum semi-sagittatum*, *Cassia calliantha*, *Sterculia carthaginensis*, (August). *Acacia arabica*, *Caesalpinia paucijuga*, *Triplaris surinamensis*, (September). *Andira inermis*, *Mangifera indica*, *Barringtonia racemosa*, *Melaleuca Leucadendron*, (October). *Jacaranda ovalifolia*, *Brownea rosea*, *Myroxylon Pereirae*, *Petraea arborea*, *Eucalyptus alba*, *Erythrina Corallodendron*, (November). *Erythrina Crista-galli*, *Spathodea campanulata*, *Lagerstroemia Flos-reginae*, (December).

6. The following are the palms which flowered during the year :—

Lodoicea sechellarum, *Nephrosperma van-Houtteana*, *Calamus Jenkinsianus*, *Chrysalidocarpus lutescens*, (January). *Pinanga Kuhlîi*, *Maximiliana regia*, *M. caribaea*, *Pritchardia pacifica*, *Sabal mauritiiforme*, *Thrinax parviflora*, *Phoenix dactylifera*, *Licuala grandis*, *Caryota Lowii*, (February). *Ben'inckia nicobarica*, *Bactris Plumeriana*, *Attalea speciosa*, *Astrocaryum aureum*, *Archontophoenix Cunninghamii*, *Dictyosperma rubrum*, *Phoenix sylvestris*, *P. paludosa*, *Sabal Blackburnianum*, *Livistona australis*, (March). *Sabal minor*, *Calyptrigyne Swartzii*, *Cocos amara*, *Caryota mitis*, (April). *Cocos schizophylla*, *C. plumosa*, *Stevensonia grandiflora*, *Attalea spectabilis*, *Caryota urens*, *Heterospathe elata*, *Acanthorhiza aculeata*, *Latania Cermersonii*, *Serenoa serrulata*, (May). *Caryota Lowii*, *Hyophorbe amuricaulis*, *Dictyosperma fibrosum*, *Livistona altissima*, *Latania Loddigesii*, *Thrinax parviflora*, (June). *Maximiliana regia*, *Copernicia cerifera*, *Hydriastele Wendlandiana*, *Cocos plumosa*, (July). *Euterpe Jenmanii*, *E. edulis*, *Geonoma baculifera*, *Dypsis madagascariensis*, *Diplothemium cuudescens*, *Ptychoraphis augusta*, *Pritchardia pacifica*, (August). *Ptychosperma Macarthurii*, *Pinanga Kuhlîi*, *Phoenix rupicola*, *P. humilis*, *P. paludosa*, *Latania Loddigesii*, *Sabal mauritiiforme*, *S. mexicanum*, (September). *Mauritia flexuosa*, *Licuala peltata*, *L. Rumphii*, *Livistona Hoogendorpii*, *Thrinax argentea*, (October). *Washingtonia filifera*, *Veitchia Joannis*, *Kentia Forsteriana*, *Calamus periacanthus*, *Corypha umbraculifera*, (November). *Attalea Cohune*, *H. speciosa*, *Hyophorbe Verschaffelti*, *Dictyosperma album*, *Dypsis madagascariensis*, *Phoenix rupicola*, *P. sylvestris*, (December).

The following palms suffered from the drought seasons experienced during the year :—

Pinanga Kuhlîi, *Chrysalidocarpus lutescens*, *Euterpe edulis*, *Licuala grandis*, *Nephrosperma van-Houtteana*, *Cyrtostachys crenata*, *Bentinckia nicobarica*, *Thrinax radiata*.

The following palms died during the year :—

Licuala grandis, *Phoenix tenuis*, *Thrinax argentea*, *Washingtonia filifera*, *Oreodoxa regia*.

Two young seedlings of the double coconut palm *Lodoicea sechellarum*, were planted this year. Two of these seedlings were planted out in 1923. These were planted in No. 1. island. Those planted out in 1924 were planted on the northern end of the centre bed near where one was planted in 1923. The other was planted on the western border on the same island. This makes three plants on this island. The one planted on the northern end of the centre bed, one of a twin seed, was fertilized on 1st September, 1916, sown on 13th November, 1922, germinated 28th April, 1924, and planted out 1st October, 1924. The other planted on the western border was fertilized 15th June, 1916, sown 8th June, 1922, germinated 10th January, 1924 and planted out 1st October, 1924. The young seedlings grow very slowly producing one leaf a year. The parent plants flowering and fruiting in the Calabash Walk form a special attraction to visitors.

7. *Orchids*.—These have suffered a good deal during the year and several of the weaker plants have died. They require rebasketing. The *Dendrobiums* grow vigorously without any care, but unfortunately produce few flowers. These have been treated in various ways in order to get them to flower but without avail. *Cattleyas* and *Phalaenopsis* make the best show. Many of the commoner kinds such as *Gongoras*, *Brassias*, *Epidendrums* and *Oncidiums* are of considerable interest and flower freely, but are not as attractive as the *Phalaenopsis* or *Cattleyas*. The following list shows the months during which the more striking ones flowered :—

Cattleya labiata, *Oncidium lanceanum*, *Gongora nigrita*, *G. atropurpurea*, *Rodriguezia secunda*, *Epidendrum ciliare*, *Brassia caudata* (January). *Cattleya specios-*

issima, *C. Trianaei*, *Dendrobium Gibsonii*, *Phalaenopsis amabilis*, *Epidendrum fragrans*, (February). *Catasetum tridentatum*, *Brassia Lawrenceana*, *Ornithidium album*, *Gongora nigrita*, *Cattleya Skinnerii*, *Dendrobium superbum*, *Phalaenopsis Stuartiana*, *Vanda suavis*, *Epidendrum variegatum*, *Cymbidium pendulum* (March). *Cattleya superba*, *Cattleya imperialis*, *C. labiata*, *C. Schroederiana*, *Sobralia sessilis*, (April) *Cattleya Bowringiana*, *C. Gaskelliana*, *C. Mossiae*, *Epidendrum nocturnum*, *Dendrobium nobile*, *Vanda teres*, *Phalaenopsis Esmeralda*, *Cattleya Jenmanii*, *Laelia tenebrosa*, *Aerides odoratum*, *A. Lobbii*, *A. crassifolium*, *Renanthera coccinea* (June). Most of these flowered a second time between July and December.

8. *Climbing plants*.—No new additions were made to these during the year. The most striking of those that flowered were:—

Bauhinia Vahlia, *Bignonia magnifica*, *Beaumontia grandiflora*, *Bougainvillea glabra*, *B. lateritea*, *Banisteria ciliata*, *Porana volubilis*, *Dipladenia Harrisii*, *Antigonon insigne*, *Derris scandens*.

9. *Herbaceous plants*.—The primrose *Asystasia coromandeliana* made a fine display during the year especially in February, March, and April, in the Park Lands and avenues. Along with these were also seen *Sagittarias*, *Crinums*, *Heliconias*, etc.

10. *Aquatic plants*.—No new additions were made to the collection of these during the year. The lakes and trenches were cleaned at intervals. The two cross canals containing the Purple and Pink Nymphaeas have been carefully watched to prevent the more vigorous growing aquatics, such as *Cabomba aquatica*, aquatic grasses, *Luziola spruceana* and the vigorous growing white flowered Nymphaea, taking over the weaker kinds. This white flowered Nymphaea, *N. dentata*, has now become a pest and would soon kill out the weaker kind if allowed to spread. It has now practically taken over the entire south side line draining trench from the Vlissengen road to the experimental fields—a distance of a mile in length. It is a fine sight when seen in the early morning when the canal is literally covered from side to side with beautiful white nymphaea lilies. The *Victoria regia* seedlings growing in Lake No. 4, referred to in my last year's report, have not recovered from the effect of the salt water that got into this lake from the town trenches. The *Nymphaeas* and *Nelumbiums* in the lakes and trenches make a good display during the year, the latter being in great demand for decoration purposes.

11. *Noxious weeds*.—The *Antidesma venosum* referred to in previous reports continues to give serious trouble where it has taken a strong hold. Its vigorous rapid growth gives the Park Lands an unsightly abandoned appearance. If when the bushes are being dug out small fragments of roots are left in the ground these fragments will grow. With such a vigorous growing bush other means of killing it are desirable. Other methods were devised as follows:—

Two clumps of stems 10 feet in diameter each received 50 lbs. of common coarse salt. No. 1 clump of stems was cut down close to the ground while No. 2 was left standing with stems 3 to 4 feet high. The salt was spread throughout the centre of the clump, slowly dissolving and soaking into the soil. Three weeks afterwards the lower leaves on the stems in No. 2 clump began to turn yellow and to drop. The tips of the shoots kept their leaves on. No. 1 clump after two months, began to grow as before. This experiment so far proved a failure. Another experiment that is under trial and which shows some promise was as follows:—

The stems of one of the vigorous growing clumps was cut off close to the ground with a cutlass, and the surface of the clumps covered over to a depth of 2 to 3 feet thick with ordinary scythed grass cut near by. So far none of the young shoots have made their appearance. It should be noted that this experiment was begun late in October last. If this method of smothering succeeds as it would appear it will do, it will be a simple and comparatively easy and economical way of keeping

this troublesome pest under control ; but the young shoots will have to be carefully watched and kept completely smothered under for some considerable time until the strong vigorous roots die. At the time this experiment was made, another strong growing clump near by was also cut off close to the ground but not covered with grass, this has produced a dense cluster of stems now 4 feet high. This will give some idea of the rapid rate of growth of this troublesome bush.

12. *Lawns and Borders*.—These have received the usual attention. The lawns have been regularly mowed and kept in fair order. The following number and kinds of plants were planted out in these gardens ; in Georgetown :—Annuals 8,754 ; Herbaceous 2,066 ; Perennials 1,600 ; Shrubs 964 ; Trees 17 ; Palms 26.

Amongst the palms planted were two *Lodoicea sechellarum*, in No. 1 Island, already referred to.

13. *Militia Band performances on Sundays*.—The following shows the number of visitors who visited the gardens on the Sundays when the British Guiana Militia Band performed (*i.e.*, every 2nd Sunday in every 2nd month) :—

FEBRUARY, 1924.		
44	Motor Cars containing...	187 persons.
3	Carriages " ...	10 "
	Cyclists " ...	185 "
	Pedestrians " ...	1,861 "
	Total...	<u>2,243</u>

DECEMBER, 1924.		
60	Motor Cars containing...	300 persons.
4	Carriages " ...	12 "
	Cyclists " ...	106 "
	Pedestrians " ...	665 "
	Total...	<u>1,083</u>

From April to October the Band was at the British Empire Exhibition at Wembley.

14. *Roads and Paths*.—In my last year's report I mentioned that several of the roads and paths required raising throughout. Considerable repairs were made to the Serpentine drives, Upper Avenue Road, Nursery road and paths, and the south side-line general heavy traffic road leading to the nursery and cow-byre. During the year two medium-sized heaps of earth were burnt for road material. No new paths or roads or alterations to existing ones were made.

The length of the Central Avenue of the Botanic Gardens east of the Oval is 367 rods or about 1,510 yards. This Avenue consisted originally of Oronoque trees planted in single rows on both sides of the road with the trees $2\frac{1}{2}$ rods apart and thus contained 294 trees. Probably prior to the death of the former Superintendent of the Botanic Gardens, the late G. S. Jenman, about 30 of these trees either had fallen or had to be felled on account of their dangerous condition, leaving here and there unsightly gaps in the Avenue. Since his death the Oronoque trees have continued to die out, some of them have had to be felled while many of them fell. Only 23 trees remain at the time of writing ; that is 92% of the trees of the original Avenue are no longer in existence. Very great attention has been paid to replacing the fallen Oronoque trees by other trees, but although the Avenue is universally recognised as still being a very handsome one it cannot compare for general landscape and gardening effects to what it was at the commencement of this century.

15. *Nursery and Nursery Buildings.*—The usual routine work of propagating was carried on. There was a slight increase in the demand for economic plants, such as cacao, coffee and other economic plants and rice padi. The usual quantity of plants for decoration purposes was kept in stock. Of the large additional number got together for the British Empire Exhibition at Wembley the following were sent:—

Palms 92, Cycads 3, Ornamental Shrubs 59, Economic plants 33, Sugar Cane growing in tubs 7, Fibre-producing plants 13, Total 207.

When the palms were unpacked in England they presented an appearance of fair promise, but soon after their arrival the large coconut palms completely failed. They evidently had not had sufficient time to establish themselves in the tubs before shipment. The large cabbage palms also succumbed, no doubt for the same reason. Cycads and *Rhapis flabelliformis* were successful, but the shrubs and economic plants had not properly recovered for any effective purpose during the time the Exhibition remained opened; although they had been kept in the Royal Botanic Society Gardens, Regent Park, in hot houses. In August, however, some sugar canes recovered producing excellent stools of young growing sugar canes. Fibre plants, (*Agaves*), etc., were the hardiest of the collection and travelled successfully. Mr. A. A. Abraham, Horticultural Superintendent, who had attended the Exhibition and in whose charge they were, in his report, is of opinion that, were the plants shipped the previous summer their efforts of planting an effective and attractive 'Tropical' Garden at Wembley would have met with much greater chances of success during the period of the Exhibition. No repairs to the Nursery buildings were required during the year.

16. *Islands No. 3 and 6.*—The haunts of the Egrets, Herons and Hawks are full of interest to visitors, especially to strangers to the Colony. During the breeding season hundreds of young birds can be seen perched on the trees and running about the lawns and by the sides of trenches apparently in search of small fishes.

17. *Irrigation and Drainage.*—The irrigation canals have received general attention. The "Bull Dog" oil engine put down by the Public Works Department five years ago continues to give satisfaction. The main draining trench in front of the Gardens from the Vlissengen bridge to the Lamaha pumping station, several rods of the north side-line draining trench going east and the south side-line draining trench from the Vlissengen bridge to the Nursery gate were dug. A good deal of this soil was used for burning earth and a quantity given to the recreation ground of the Girl Guides for raising and levelling. The recreation ground is the eastern portion of the Brickdam Experimental Field. The Public Works Department made a concrete groove on the eastern end of the bridge where a greenheart plank can be slipped into and taken out as required and so prevent salt water backing up into the gardens when the town canals are periodically flooded.

18. *Shelter Belt and D'Urban Park.*—The former is situated along the northern side of the gardens. It received the usual attention. The avenue of Saman trees, *Pithecolobium Saman*, in the D'Urban Park is making satisfactory progress. This Park is now being used for breeding and rearing horses for police remounts. It now drains eastwards towards the cross trench that drains into the Botanic Gardens south side draining trench. Formerly this field used to drain this way as well as through an old wooden box koker running across the Vlissengen road at the top of Brickdam and entering into the northern draining trench of the Brickdam; this koker had got into a very dilapidated condition. It was removed and the area filled in with earth. The ground of the compound and around the buildings has been made up and a kraal built to facilitate rounding up the animals when required to be caught.

19. *Coffee.*—There was an increase in the demand for coffee plants this year compared with the previous year. In 1924 the number sold was 736, in 1923 the number was 289. All of these plants were the Liberian variety.

Cacao.—The demand for Cacao was also slightly on the increase. In 1924 one thousand nine hundred and thirty were sold. In 1923 one thousand four hundred and ten were sold.

Other Economic Plants.—The demand for these were also slightly on the increase this year, about six hundred more plants having been sold. Included in these were six hundred banana suckers.

20. The number of fruits borne by the different varieties of mango trees growing in the nursery was as follows:—

Varieties.	No. of trees.	No. of fruits.
Jamaica No. 11. ...	5	1,888
Ceylon No. 1. ...	6	1,714
Mrs. White ...	3	982
Canal No. 1 ...	4	831
D'Or ...	2	820
Julie ...	6	738
Dr. Rowland ...	6	700
Colonial Bank ...	2	656
Mrs. Dare ...	3	514
Chinoise ...	3	503
Imperial ...	1	446
E. I. Seedling ...	1	360
Bombay Purple ...	3	332
Divine ...	2	289
Mrs. Francis ...	1	286
Gordon ...	1	276
Bombay Yellow ...	1	226
Pere Louis ...	1	197
Sabot ...	1	173
Reynaud ...	1	168
Josephine ...	1	166
Martin ...	2	165
Bombay 25 ...	1	160
Bombay 27 ...	1	126
Martinique D'Or ...	1	120
Pt. D'Or ...	1	87
Princess Marie Louise ...	1	25

A large number of the fruits were attacked by a fungus, *Gloeosporium mangiferao*, which made them unfit for eating. Several of the trees have failed to produce fruit for some time past, although growing quite vigorously. A number of these were cut severely back. All the trees except one threw out numerous shoots; these had to be thinned out on several occasions. The primary shoots also formed clusters of secondary shoots which had also to be carefully thinned out to prevent overcrowding.

21. The following table shows the work carried out in the Nursery during the year as compared with the five previous years:—

TABLE I.

	1919	1920	1921	1922	1923	1924
Kinds of seeds sown	298	111	9,744	16,161	56	11,334
Seedlings basketed	15,875	12,371	11,484	9,776	5,990	8,154
do. potted	1,467	346	758	2,856	1,232	956
Plants rebasketed	3,999	1,838	3,432	4,432	5,601	4,783
Plants repotted	2,100	410	185	1,219	1,531	1,443
Plants top-dressed	12,239	190	...	...	290	1,707
Plants divided	96	217	349	502	483	649
Plants layered	550	331	803	782	350	496
Plants grafted	182	242	513	148	...	66
Cuttings basketed	418	191	59	1,016	531	183
Cuttings planted in beds	1,529	2,422	4,400	5,569	2,065	3,662
Plants tubbed	20	210	79	71	418	93

22. The following Table gives the receipts from the Ornamental section for the year as compared with the five previous years:—

TABLE II.

	1919	1920	1921	1922	1923	1924
Plants	380—\$ 48 00	2,511—\$ 309 58	1,257—\$ 177 24	1,460—\$ 265 76	988—\$ 147 77	5,981—\$ 309 71
Flowers (baskets)	150— 18 12	808— 97 84	1,065— 127 82	1,453— 174 63	1,027— 122 24	617— 149 45
Seeds (value)	40— 4 80	57— 6 84	107— 12 92	131— 15 70	294— 36 28	313— 38 88
Bamboo (bundles)	...	...	...	...	...	...
Delivery of plants and flowers	2 05	4 00	4 92	4 36	13 21	2 50
Pots	...	41— 8 16	35— 10 88	78— 17 98	151— 24 61	101— 21 06
Hire of Plants	5 80	13 91	3 12	14 40	20 50	13 60
Pound Fees	...	...	21 55	45 70	15 98	49 88

23. Sales for the economic section of the Botanic Gardens for 1924 are shown in the following table:—

TABLE III.

Months.	Coffee.	Cacao.	Nutmeg.	Grafted Mangoes.	Banana Suckers.	Other Economic.	Journals.	Totals.
January	...	...	3	2	...	25	18	\$ 2 16
February	...	302	3	9	300	1,185	8	27 01
March	312	150	...	...	...	35	...	7 85
April	...	24	...	...	...	42	...	1 18
May	...	409	...	...	...	95	...	7 90
June	100	401	...	...	400	113	...	8 44
July	...	200	...	...	...	38	...	3 88
August	37	13	...	...	...	32	...	1 44
September	...	03	...	...	...	27	...	68
October	14	200	...	...	...	76	...	4 40
November	...	200	...	...	...	56	...	4 04
December	273	37	...	...	...	43	1	6 14
Totals	736	1,830	5	11	600	1,708	27	75 13

Pedi lbs. ...\$ 310 74
Fowls, 5 ... 13 00
Eggs, 856 ... 97 74

It will be noticed that in this table two new items appear this year, viz: Fowls and Fowl eggs. The fowls being white Leghorn breed imported by the Board of Agriculture a year ago. The hens of this breed never want to set but are steady layers except when moulting. They are probably the most profitable breed of laying fowls to be had.

24. *General.* The amount of fees collected by the Pound established in the Nursery for stray animals was \$51.19.

25. *Berbice Public Gardens, Government House and other Government Gardens and Grounds.*

THE BERBICE PUBLIC GARDENS AND GROUNDS.

The Berbice Public Gardens have been under the care of Mr. E. M. Morgan the Resident Agricultural Instructor. The usual careful attention was given to

these. The sub-soil drainage referred to in the previous report is working satisfactory. Further improvement in this direction is necessary in places where water still collects in time of heavy rain. The only plant of special importance which showed signs of flowering was the Talipot Palm, *Corypha umbraculifera*, which started to throw up its flowering stalk in December.

26. *The Public Buildings Grounds.*—These received the usual attention throughout the year. Two large Caryota palms that have finished flowering will have to be cut out as they are beginning to look unsightly.

Government House Gardens.—These gardens continue to improve. Lady Thomson is untiring in her interest in making them as attractive and bright as possible. Many of the heavy dark green foliage plants have been replaced by bright coloured foliage and by flowering ones. In addition to those obtainable locally Lady Thompson had a collection of Ornamental Shrubs, creepers and trees sent out from the Ceylon Botanic Gardens. A few of them were growing already in the Botanic Gardens. Most of them, however, were new to our collection. A Talipot Palm, *Corypha umbraculifera*, in these gardens is also coming into flower. This palm is celebrated as possessing the largest inflorescence; when fully grown it exhibits the enormous height of 46 feet with a breadth of 39 feet. As soon as the flowers open the fan-like foliage leaves below begin to fade and often all fall off during the flowering period so that the stem alone bearing the inflorescence at its apex remains. As soon as the fruit matures the whole plant dies down. This palm only blossoms once in its life.

The lawns too are being gradually improved by giving them a covering of three inches of fine soil, thus killing out the sourgrass and other noxious weeds. This also favours the growth of Bahama grass which is readily taking over. This grass makes excellent lawns.

27. *Municipal Gardens, Georgetown.*—Mr. Peterkin being away on leave of absence most of the year the supervision of these gardens was under Mr. Beharry and myself. Every effort was made as far as funds would allow to keep the beds, borders and walks in order. The borders are still low in places and required raising. Soil from the sewerage works might be obtained near by and with a liberal supply of manure this should improve the general condition of these borders. The lawns too require attention. Two punt loads of shell were obtained and spread on the paths. The area of the paths however being very considerable this quantity of shell did not allow of a third layer to be put on. As mentioned in previous reports much of the time of the employees is taken up in cutting flowers, making bouquets, wreaths, festoons, etc. The expenditure was \$3,346.42 while the revenue was \$1,683.46.

28. Seeds of the following were despatched abroad in exchange for others.

NAMES.		QUANTITY.
Sapium Jenmanii	...	1 packet.
Copernicia cerifera	...	1 "
Hydriastele Wendlandiana	...	1 "
Serenoa sp. (from Kew).	...	1 "
Serenoa serrulata	...	1 "
Bentinckia nicobarica	...	1 "
Diplothemium caudescens	...	1 "
Euterpe edulis	...	1 "
Mauritia flexuosa	...	1 "
Capsicum various	...	14 packets.

NAMES.		QUANTITY.
<i>Tobacco Seeds—</i>		
Maryland broad leaf...	...	1 packet.
Sumatra	...	1 "
Turkish (Samsown)	...	1 "
Cuban	...	1 "
Big Orinoco	...	1 "
Havana	...	1 "
<i>Cover crop Seeds—</i>		
Canavalia	...	10 ozs.
Bengal Bean	...	10 "
Pigeon pea	...	8 "

I have the honour to be,

Sir,

Your obedient Servant,

R. WARD,
Superintendent, Botanic Gardens.

THE DIRECTOR OF SCIENCE AND AGRICULTURE.

**REPORTS OF THE DEPARTMENT OF SCIENCE AND AGRICULTURE
FOR THE YEAR ENDED 31st DECEMBER, 1924.**

APPENDIX III.

REPORT OF THE ASSISTANT BOTANIST AND MYCOLOGIST.

APPENDIX III.

BOTANIC GARDENS,
GEORGETOWN,
BRITISH GUIANA.

SIR,

I have the honour to submit herewith my report for the year ended 31st December, 1924.

In the early part of the year I was absent from the Colony for a period of three months—from the 10th of January until the 13th of April—during which I attended, as British Guiana delegate, the Ninth West Indian Agricultural Conference held in Jamaica, paid a brief visit to the United Fruit Company's cultivations in Costa Rica, and spent some six weeks in Trinidad, occupied with pathological work in Prof. S.F. Ashby's laboratory at the Imperial College of Tropical Agriculture, and in the study of local agricultural practice and conditions. My reports on the conference and subsequent visits have been published as Sessional Paper No. 49 of 1924.

PLANT DISEASE INVESTIGATIONS.

SUGAR CANE.—*Root Disease.* Isolated cases of root disease have been observed on several estates, but the year has not been characterised by any severe outbreaks, and the prevalence of this form of disease may be regarded as having been normal. The study of its etiology was continued as opportunity arose and material came to hand. Whilst working in Prof. Ashby's laboratory in Trinidad I conducted an experiment with the object of testing the pathogenicity and relation to root-rot of the fungus (*Sclerotium rolfsii*) which I had isolated from the roots of affected canes in Berbice, and at the same time made similar observations on two other species of fungi (*Rhizoctonia solani* and *Pythium sp.*) which have been associated with this disease in other cane-growing countries. In all, five strains of fungi were employed in these experiments; two of *Sclerotium rolfsii* (the other strain had been isolated in Trinidad by Prof. Ashby), two of *Rhizoctonia solani* and one of *Pythium sp.* Pure cultures (on potato mush agar) of each of these five strains were mixed with 500 grams of sterilised soil (sterilised by heating in steamer for one hour) and incubated in suitable tin containers at air temperature for six days. At the end of this period the infected soils were transferred to 10-inch plant pots, which had been partially filled with unsterilised soil. Twenty-one pots were so infected; six with the strain of *Sclerotium rolfsii* isolated in Berbice, three with the strain of this fungus isolated in Trinidad, six with a mixture of the two strains of *Rhizoctonia solani*, and six with the strain of *Pythium sp.* Three pots, to which 500 grams of sterilised but non-infected soil was similarly transferred, were set up as controls. Each of the twenty-four pots was planted with selected, healthy Bourbon cuttings, which had previously been sterilised by a ten minutes' immersion in 0.1% solution of mercuric chloride, and then washed for 30 minutes under running water. Bourbon was selected for this purpose as a variety which has the reputation of being extremely susceptible to root-rot.

The conditions of this experiment, it is true, were far removed from those which would obtain in the field, but considered in relation to host and suspected parasite they certainly favoured the latter. During the six days incubation in sterile soil the fungi made vigorous growth. The soil infected with *Rhizoctonia* had become so interpenetrated with the hyphae of the fungus that it emptied from its tin container in a compact mass which had to be broken down before it could be transferred to the pots.

A fortnight after planting, a representative series of cuttings was removed for examination. By this time, the shoots had made fair growth; the roots, in every case, were healthy though, in some, development was not well advanced. The roots of a cutting planted in soil infected with the mixed strains of *Rhizoctonia* were caked around with infected soil and overgrown by the mycelium of the fungus, but other-

wise appeared normal. At this stage I was forced to discontinue my observations owing to my departure. The brevity of the period over which this experiment was extended must necessarily influence the value of its results, but these at least indicate that the strains of fungi which were studied are not actively pathogenic, even under conditions which might be expected to have been particularly favourable to their parasitism.

During the course of my observations in the field on this disease, the roots of affected plants have repeatedly been found to be variously pierced by small punctured holes. These holes are roughly circular in outline, about 1 mm. in diameter and extend into the deeper tissues of the cortex but do not enter the hard central vascular stele. They have every appearance of being due to some animal agency, but carefully conducted searches have not, as yet, disclosed the perpetrator. This form of injury does not invariably occur, but is nevertheless not uncommon. The wounds thus formed provide, as would be expected, a means by which fungi and bacteria may effect an entrance into the soft cortical tissues of the root. It is not at present possible to say what relation these punctured holes bear to the incidence of root disease.

Top-Rot. Towards the end of July two slight outbreaks of top-rot were reported, the one from an estate on the East Coast, the other from an estate on the West Coast, Demerara. The symptoms were similar to those observed in the previous year, and it is of some interest to note that the disease made its appearance in the same month (July). I have subsequently learnt that at about the same time what was undoubtedly the same form of injury occurred on several other estates, but as the outbreaks were slight it was not considered necessary to report them. This attitude with regard to the notification of disease is unfortunate. There is a distinct tendency among both planters and farmers to delay the notification of an outbreak of disease until it has reached proportions which are sufficiently serious to engender alarm, and which, incidentally, are such as to render the question of control an extremely difficult one. Failure to bring the occurrence of a disease to the notice of this Department bears further regrettable aspects. The etiology of some of the more destructive diseases affecting staple crops in the Colony has yet to be elucidated. The more cases which are investigated the more likely is progress in this object to be advanced. Laboratory and field experiments must be supplemented by field observations, and when an outbreak of disease remains unnotified, an opportunity for field observation is lost. Furthermore under the existing circumstances it is neither possible to form an accurate conception of the distribution of a disease, nor of the losses resulting therefrom.

The disease under consideration illustrates some of the above points. The cause of top-rot in cane is still in doubt. The earliest investigators, in Java, found bacteria to be associated with this condition, and concluded from their subsequent observations that abnormal growth conditions predisposed the plants to bacterial infection. In the Argentine, as the outcome of experimental inoculations, it is held that certain bacteria which can become pathogenic during periods of high temperature and slow growth, are responsible. In Porto Rico, and in Louisiana top-rot is regarded as being an advanced symptom of root-disease. In Australia it appears to be associated with gummosis (Cobb's disease). As it occurs in this Colony, top-rot is quite distinct from root-disease. Two symptoms which, here, invariably accompany root-disease, namely—gumming of the vascular tissue in the basal nodes and internodes, and a poorly developed and rotted root system, are found to be absent in cases of top-rot.

In my preceding report it was stated that bacteria had been isolated from the cavities which are formed in the stems of affected plants. Pure cultures of these organisms (of which a third strain has since been obtained) have been inoculated into the leaves and growing points of healthy canes. The results secured, at the time of

writing, have been negative. None of the plants so treated have developed symptoms of the disease.

Three tops drawn from an affected stool of D.108 were planted out and the canes derived from two of these have been kept under observation. (The third top was removed for examination a month after planting—nothing abnormal was found). When these plants were some two months old, elongate, irregular chlorotic areas began to appear at the base of the leaves in one stool. Two months latter, an incipient crumpling of some of the younger leaves was noticeable. At the present time (seven months after planting) all shoots in this stool exhibit this symptom of crumpling. During the course of the last few weeks several of the still enrolled 'heart' leaves have begun to dry up and die. Some of the canes thus affected have been examined. The base of the immature leaves has been found to be involved in a wet, putrid rot, but as, in each case, this has been associated with borer holes and frass, and it would seem that *Diatrea* larvae must be looked upon as its predisposing cause. In the second stool the canes have not yet shown any tendency towards leaf crumpling, and it is, perhaps, significant to note that, whilst of the 12 canes in this stool only two (17%) show 'dead hearts', of the 13 canes in the stool displaying the symptom, eight (62%) have already had the 'heart' destroyed. It is to be regretted that these observations have had to be confined to two stools. I propose shortly to 'draw down' several canes from both stools and thus will be enabled to continue my studies on a more extended scale.

Chlorosis. Early in October, the Superintendent of the Sugar Planters' Experiment Station drew my attention to some canes growing at Plu. Sophia, the leaves of which exhibited a chlorotic mottling. The character of this chlorosis coupled with the stunted appearance of the plants suggested that the canes might be affected with mosaic disease, and some support was lent to this suspicion when it was learnt that they were an extension of a consignment of B.H.10(12) which had been imported from Barbados in 1920, the year in which mosaic disease had been recognised as being present in that island.

Having visited sixteen estates which had received consignments of this particular lot of cane at various periods since the date of its introduction, and carried out field inspections on eight, I submitted a report on October 24th (published as Government Notice No. 164 of 1924) embodying my views on the position at that time. In this it was stated that "A considerable proportion of a consignment of B.H.10(12) imported into this Colony from Barbados in December 1920, is affected with a chlorosis which takes the form of a pale green mottling of the leaves, typically distributed evenly over the whole leaf surface, but at times confined to one side of the midrib. It occurs most frequently on the more mature leaves, but in a small percentage of cases can be found on the youngest leaves. This chlorosis would appear to be capable of transmission, by vegetative reproduction, through successive generations, for it has appeared in progeny derived from the original consignment in various parts of the Colony on what must, at this stage, be regarded as a fairly wide range of soils.

"A general consideration of these symptoms renders them somewhat suggestive of infectious chlorosis (mosaic disease). This disease is characterised by a peculiar pale green or yellow mottling of the leaves. . . . In typical cases the mottling is always present on the youngest leaves, though it may be absent on some of the older ones, and involves the entire leaf surface. Speaking broadly, it is in this manner that the leaf symptoms of infectious chlorosis differ from those which accompany some types of chloroses attributed to defective nutrition, in which cases the mottling tends to be localised, and is not, as a rule, distributed over the whole

leaf. The fundamental points of difference, however, between mosaic disease and other forms of chlorosis is that the former is infectious, can be reproduced vegetatively, and is not influenced by variations in soil character. The entire absence, at the moment, of any indications of spread of the chlorosis from the affected stools of B.H.10(12) to neighbouring canes or weed grasses is strong evidence in support of the view that the mottling is of the non-infectious type, but cannot, however, be regarded as proof of this. For the aerial transmission of mosaic disease the presence of a suitable vector is essential.

"In view of the absence of any evidence of spread. I am of the opinion that there is at the moment, no reason for regarding the situation with alarm."

Since the above was written, time has made possible a more critical study of this disease and, as the result, I am now able to state that the chlorosis under consideration is not infectious, or that, in other words, the disease is not mosaic disease. The evidence on which this conclusion has been based is summarised below.

(a) All attempts to transmit the chlorosis to healthy cane and corn plants, utilising both insect and artificial means of inoculation, have been unsuccessful. The insect transmission experiments, begun by the Government Economic Biologist, were at his departure on leave; continued, under my supervision, by his Assistant. In these experiments, corn aphids (*Aphis maidis*), which are proved vectors of cane mosaic, were bred, under cages, on mottled plants of B.H.10(12), and transferred, after suitable periods, to healthy young corn plants, the latter being then covered with muslin bags. The plants thus inoculated have completed their life-cycles without developing any symptoms of mosaic disease. (In a similarly conducted experiment, but using aphids bred on plants known definitely to be affected with mosaic disease, Brandes (1) records a 50% infection of the corn plants, sixteen days after inoculation).

In the artificial transmission experiments, juice from the immature tissues of the apical bud of mottled plants of B.H.10(12) was injected by means of a hypodermic syringe into the region of the growing point of healthy corn and cane plants. It was so arranged, by inserting small pieces of the immature tissue into the barrel of the syringe that the expression and injection of the the juice was performed in one process. (A previous mechanical expression of the juice in bulk was to be avoided, for it has been shown (2) that the virulence of infectious juice is adversely affected by exposure to the air). A clean, and recharged hypodermic was used for each inoculation, at which not less than 0.1 c.c. of freshly expressed juice was injected. In cases where the needle became choked, the inoculation was repeated until a satisfactory injection had been obtained. All the corn plants thus treated, came to maturity without developing any symptoms of mosaic disease. The cane plants have also remained healthy.

(b) The lack of evidence of spread of chlorosis in the field from affected stools of B.H.10(12) to the surrounding canes, or to weed grasses, is neither to be accounted for by the absence of a suitable vector, for it has been determined that *Aphis maidis*, although somewhat infrequent, is, nevertheless, to be found in cane cultivations, particularly on certain weed grasses, nor by the immunity of the adjacent canes or weed grasses, for of the former, the variety occurring most frequently (D.625) has proved susceptible to cane mosaic elsewhere, and of the latter, four species commonly encountered (*Echinochloa colonum*, *Syntherisma digitata*, *Syntherisma sanguinalis*, and *Eleusine indica*) are also known to be susceptible to this disease.

(c) In typical cases of mosaic disease, as has already been mentioned the mottling is always present on the youngest leaves. In my previous report it was observed

(1) Brandes, E. W. Jour. Agr. Research, v. 19, No. 10, p. 517-523, 1920.

(2) Brandes, E. W. Jour. Agr. Research v. 19, No. 3, p. 131-138, 1920, and v. 24, No. 3, p. 247-262, 1923.

that in less than 10% of the cases at Pln. Sophia did the immature leaves exhibit the chlorosis. A more general estimate based on the survey of several estates puts this figure at not more than 5%.

(d) The mottling does not, as a rule, make its appearance on the leaves of plants derived from affected cuttings until the shoots are from three to five months old, and then its occurrence may be infrequent. A careful count of a plot of plant canes propagated from affected tops, made five months after planting, showed that only 9% of the stools had developed the symptoms of chlorosis. On the other hand in a plot of five months old first ratoons, 55-60% of the stools were affected. However, from the evidence supplied by the observation of plant canes, it is to be concluded that my former statement that chlorosis "would appear to be capable of transmission by vegetative reproduction. . . ." is incorrect.

(e) The pattern produced on the leaf by the chlorotic areas bears no resemblance to that developed in authentic cases of mosaic disease on the leaves of B.H.10(12) grown in Barbados. This comparison was made by means of preserved material kindly supplied by the Director of Agriculture, Barbados.

In the light of more recent knowledge of the disease, the recommendations which were formulated last October for its control would now seem to be vitiated, for they are largely based on the tentative assumption that the disease could be transmitted in affected cuttings. When these recommendations were made, sufficient time had not elapsed to allow of this hypothesis (which had its origin in the fact that the disease had appeared indiscriminately, in progeny derived from the original importation, in widely separated areas, on a varied range of soils) being put to the test of experiment, but this has since been done, and it appears to be untenable.

The evidence now available makes it seem probable that this chlorosis is the outcome of some nutritional disturbance. That it develops in canes growing on a wide range of soils should not, perhaps, be held to indicate that the predisposing factor is one unconnected with soil conditions, but rather one that is common to soils which may otherwise differ. At this stage of my enquiry it is not possible to specify this common factor.

On several occasions it had been brought to my notice that B.H.10(12), although affected with chlorosis, yields juice containing more sucrose per gallon than that of any other variety grown in the Colony, and this fact has been adduced as evidence that the chlorosis, if not actually beneficial, is at least harmless. It is hardly necessary to point out that this contention is fallacious. Any normal autophyte, such as sugar cane, depends for its existence on the photosynthetic activities of the green colouring matter, the chlorophyll, of its leaves. It is solely by virtue of properties peculiar to this substance, that a green plant is able to utilise the energy emitted by the sun for the initiation of the synthesis of those complex organic compounds, in whose absence growth, and eventually life, ceases. It follows, therefore, that any circumstance resulting even in the partial loss, or destruction, of chlorophyll in the leaf must react unfavourably on growth. The pale green areas which give the mottled appearance to leaves affected with chlorosis, are areas which are deficient in chlorophyll, and a leaf so affected necessarily operates at a lower state of efficiency than one which is healthy.

That the yield of sucrose per gallon of juice of chlorosis-affected B.H.10(12) is higher than that of other varieties of cane, which nevertheless are healthy, shows that in spite of the chlorosis, this seedling retains its inherent tendency to store comparatively large quantities of sucrose in its stem. Although it does not inevitably follow that in the case of chlorosis-free B.H.10(12) the yield of sucrose *per gallon* would be increased—but it is not likely to be diminished—yet it is certain that, other things being equal, the yield of cane, and of sucrose, *per acre* would be appreciably improved.

Whilst this cane continues to give returns which compare favourably with the varieties more generally grown it will no doubt be retained in cultivation, and the area it occupies even extended, in spite of its being extremely subject to chlorosis. Whether these favourable returns will be maintained in later ratoon crops, or whether, as has already occurred on some estates, there will be a rapid diminution in yield, is a matter for consideration. When the history of the earlier Barbados seedlings in this Colony is reviewed it would not appear advisable to place too much reliance on this particular one, and, furthermore, it is suggested that the continued vegetative propagation of a plant affected with chlorosis is likely to be accompanied by a progressive loss of vigour.

Another form of chlorosis, more characteristic of the type associated with defective nutrition, is to be recorded from an estate on the Corentyne River, where, I understand, it is a complaint of long standing, but one which has never assumed serious proportions. The variety of cane affected in this instance is D.625. The chlorosed areas occur on the outer leaves only, and are large, irregular, and of a yellowish-green colour. On account of the extensive leaf surface involved, diseased stools, whose distribution through a field is extremely uneven, are readily distinguished at some distance. Six stools raised, here, from tops drawn from affected plants, have been kept under observation for eight months, and have not, during that period, developed any signs of chlorosis.

Ring-Spot. Ring-spot disease of the leaf (caused by the fungus *Leptosphaeria sacchari*) although of common occurrence, especially in fields of cane which are approaching maturity, may under normal circumstances be regarded as a disease of minor importance for infection is as a rule confined to senescent leaves. However conditions periodically arise, which, favouring the spread of the fungus and reducing the resistance of the plants, result in sharp local epidemics. A somewhat severe outbreak of this nature took place during the year on an East Coast estate, and the existence of well defined varietal susceptibility was brought out prominently in this particular instance. The field in which the epidemic occurred had been planted to D.625, D.109, and D.145, and whilst the first named variety passed through almost unscathed, the latter two were severely attacked. The comparative susceptibility of D.145 to this disease has been observed on more than one previous occasion.

Other Diseases.—Pineapple disease (*Thielaviopsis paradoxa*) has occasionally been encountered; its prevalence would seem to be greatest on pegass soils. Infections by *Cercospora vaginæ*, the organism causing red-spot disease of the leaf sheath, are to be found on most canes. *Melanconium sacchari* invariably occurs as a secondary infection on plants debilitated by root-disease. A mycetozoon (*Stemonitis* sp.) is to be recorded from Berbice on mature leaves, but there is no reason to believe that this organism is other than strictly saprophytic.

COCONUTS.—‘*Bud Rot*’—The gradual elimination of the coconut palm in certain localities, which has now been in progress for some years as the result of the pathological condition known as ‘bud-rot’ has been maintained with what appears to be accustomed severity.

The affection which is responsible for these widespread and continued losses is in my opinion, falsely designated by the name of ‘bud-rot.’ The earliest and most characteristic symptom of specific bud-rot, a disease caused by a species of *Phytophthora*, is infection of the bud, followed by collapse of the whole central whorl, which falls over leaving the trunk crowned by a ring of green leaves. My observations on the disease which occurs here have convinced me that, as a general rule, the bud is the last portion of the crown to become affected, and that almost an invariable feature of this form of injury is the progressive death of the leaves from below upwards. Consideration of the evidence which has been forthcoming has led me to believe that this disease is not induced by the operations of any specific organism but is primarily to be attributed to unfavourable soil conditions whose deleterious effects have in many instances been aggravated by cultural neglect.

The selection of areas for planting this crop seem often to have been made without due regard to its requirements. The cultivations which are at the moment the more severely affected are those situated either on low lying, badly drained heavy clay front lands, or on pegass soils which suffer from similar disabilities. The minimum of cultural treatment is given. At the best this consists in a very occasional weeding, and an equally infrequent cleaning of drains. I have been informed on some plantations that fields are picked only on their outskirts for the 'bush,' which has been allowed to grow up between the palms, prevents free access to their interior. And on more than one occasion I have found it impossible to progress through such 'cultivations' without the aid of a cutlass which was constantly needed to clear a path through a similar undergrowth. How long this form of neglect has been in operation I am not in the position to say, but I understand from a very early period in the lives of the trees.

It is not unusual to find cultivators laying the blame for the spread of the disease into their fields on their neighbours; I doubt whether this accusation is ever strictly justified. If any blame is to be laid, though there would seem little to be gained at the present day by the search for a scapegoat, it would be more in accordance with the facts to assign it to the circumstances which originally influenced the selection of the site occupied by the cultivations, and which have since been responsible for the neglect of suitable cultural treatment.

In the case of younger cultivations it would no doubt be possible to overcome, to some extent at least, the disadvantages arising from the unsuitable situation of the land and nature of the soil by devoting strict attention to tillage and to adequate drainage, but, even did economic conditions permit the expenditure that this would necessitate, it is questionable whether on the older cultivations the harm resulting from fifteen or more years of neglect could ever be completely recovered.

The destruction of dead and dying palms by fire is, if carried out effectively, undoubtedly an expensive operation. It is to be assumed however that this measure ensures the elimination of a large number of organisms capable of infecting, and ultimately encompassing the death of already debilitated trees. But it can hardly be expected to have any continued beneficial effect unless it is accompanied by a distinct improvement in cultural methods, and therefore under existing conditions it is perhaps only right to admit that the value of this control measure, considered from its economic aspect, may be open to some criticism. Whether this criticism is merited seems a point which is worthy of a careful investigation.

Red-Ring.—Red-ring, an infectious disease caused by the parasitism of a nematode worm (*Aphelenchus cocophilus*) was reported as being present in the Colony in 1920. I have, as yet, been unable to confirm this record.

RICE.—Blast. A noticeable epidemic of blast, a disease associated with a fungus, *Piricularia grisea*, occurred during the year in one of the experimental rice fields. Marked variations in varietal susceptibility were to be observed. A recently imported Ceylon variety, H.J. 16 was so severely attacked that it appeared as though fire had passed through it. In spite of this severe check, on being cut back, it ratooned well and eventually came to maturity, indicating that in addition to the fungus, other factors are associated with outbreaks of this disease. None of the varieties present in this field exhibited immunity. The Demerara varieties, H.35, H.37, 75, 78, 79, and *McKenzie City*, and the Louisiana variety, *Blue-Rose*, were all slightly affected.

It was observed that infection takes place commonly on the leaf or at the junction of the leaf blade and sheath. In the former case minute brown spots appear on the leaf surface, which gradually lengthening in the direction of the long axis, develop into elongate, oval, brown areas, the centres of which in time take on a grayish colour owing to the extrusion of conidiophores and production of conidia;

these reproductive bodies are developed on both surfaces. The spots enlarge, become confluent, and finally the entire leaf blade is destroyed. If infection takes place at the junction of lamina and sheath the tissue in that region loses turgor, and the leaf falls over. Infection from this point may spread down the sheath and involve the stem.

The presence of this disease in the Colony was recorded for the first time by Bancroft in 1914. No information is available as to its present distribution or as to the amount of damage it incurs.

PLANTAINS.—A disease affecting plantains and the dwarf banana (*Musa cavendishii*) has been under investigation since the latter part of the year. It presents several features which lead to the belief that it is infectious and may be of a similar nature to the malady described by Rorer from Trinidad under the name of 'moko-disease.'

What appears to have been the same disease was first recorded by Stockdale in 1909, and was then stated to have been present in the Colony for some years. It would seem to occur wherever plantains are grown. During the year under review it is definitely to be recorded from the Pomeroun, the Essequibo Coast, and the West and East Coasts, Demerara. From my brief acquaintance with it I believe it to be responsible, in the aggregate, for heavy losses, and, as the plantain is a food crop of considerable importance in this Colony, its ravages must be regarded with some concern. Its etiology has not yet been clearly elucidated. The adoption of control measures based on existing knowledge of its nature have been advocated from time to time by officers of this Department, but it is to be feared that few farmers have ever availed themselves of the advice thus given. This apathy is difficult to explain unless it be attributable to a tendency to look upon the incidence of disease as due to supernatural causes.

CACAO.—Witch-broom disease (*Marasmius perniciosus*) is still prevalent in many cultivations. In spite of the advice issued by the Board of Agriculture the attitude of cultivators with reference to control measures remains unchanged. A few in fact appear to regard the abortions produced by this fungus much in the same light in which they regard the cacao pods—as natural and necessary developments of growth. Owing to the neglected condition of some of the larger cultivations infection has probably reached a maximum, for it is to be expected that a state of equilibrium now exists between host and parasite, so that any further extension of the disease in these cases is unlikely. Failure to adopt ordinary measures of field sanitation, and unduly heavy shade continue to maintain the losses due to pod-rot (*Phytophthora faberi*.)

COFFEE.—A wilt disease of Liberian coffee which occurred on an estate on the Pomeroun River has been the subject of an enquiry which is still proceeding. This is understood to have been an isolated outbreak. The affected bushes were 12 to 14 years old, and were growing on a shallow pegass soil underlain by clay. The wilting appeared to be fairly uniform and rapid, and was associated with rather ill-defined chlorosis. The withered leaves remained attached to the branches after the death of the tree. There was evidence of some root-rot, and a fungus which is at present unidentified has been isolated from this region. The external symptoms bear a superficial resemblance to those of the phloem-necrosis described from Surinam by Stabel, but this identity has not yet been established. It was apparent that the drainage of the fields in which the disease occurred was in need of improvement; at the time of my visit water was to be reached at a depth of 18 inches to 2 feet.

PARA-RUBBER.—Whilst most of the inland rubber cultivations have now been abandoned on account of the ravages caused by the endemic leaf disease (*Melanop-sammopsis ulvi*) it is noticeable that many small plantations situated on the coast are

comparatively free from infection. This apparent immunity of coastal cultivations seems to be related to the question of atmospheric humidity. It has been shown by Stahel in Surinam that a persistent film of dew on the leaves is necessary for the germination of the conidia of the causal fungus, and therefore for infection; for this reason, cultivations in positions exposed to the moderating influence of the trade winds are, as a rule, only slightly affected but those in situations subject to enveloping mists are liable to severe epidemics.

MISCELLANEOUS CROPS.—Mango anthracnose (*Gloeosporium mangiferae*) has been extremely abundant. Fruit that is not disfigured by the unsightly brown spots produced by this fungus is a rarity. The black spot disease of roses caused by *Diplocarpon rosae* which is of common occurrence on these plants became mildly epidemic towards the fall of the year, and caused some concern.

JENMAN HERBARIUM.

It is to be regretted that limited progress has been made with the general work of repairing or renewing the older, deteriorated sheets. This task requires extreme care, and necessitates personal supervision; the insistence of other duties has seldom permitted the latter.

The reorganisation of the main collection of grasses carried out in accordance with the determinations made by Dr. A. S. Hitchcock (1), Systematic Agrostologist of the United States Department of Agriculture, which was begun in 1923, has now been completed. A subsidiary collection, which has since been separated from the large amount of unclassified material present in the Herbarium, is gradually being incorporated. It is proposed to submit any of this material the identity of which is at all doubtful to Dr. Hitchcock for the favour of his authoritative opinion.

A small consignment of specimens forming part of the collection made in 1923, was sent during the year to the Royal Botanic Gardens, Kew, for identification. The complete determinations of most of these have since been received. It has proved impracticable to name the few remaining species in the absence of revisions of the genera concerned. It may, perhaps, be remarked that this circumstance would be less likely to arise were a Flora of the Colony in the course of preparation. Among the species which have been determined, the following are now represented in the Herbarium for the first time, and do not appear to have been recorded previously from the Colony.

Oldenlandia callitrichoides, Griseb. a weed in cultivated ground, Georgetown.

Memora flavida, Bur. et K. Schum. climbing over low bush, Kalacoon, Mazaruni River.

Part of the collection of *Passiflora* was loaned to the United States National Museum, and Mr. Ellsworth P. Killip of the United States National Herbarium, who is engaged on a revision of the tropical American species of this genus, has been kind enough to affix his identifications to these sheets. In order that the remainder of this material, most of which is unidentified, may secure the benefit of Mr. Killip's determinations, it is shortly being forwarded to the United States.

The Herbarium specimens of the genus *Phaseolus* were submitted by request to Prof. C. V. Piper, Senior Agronomist in charge of Forage Crop Investigations, United States Department of Agriculture, who is revising this group and he has most courteously checked and corrected the nomenclature of this material.

Little opportunity for securing additional specimens has occurred during the year. Small collections have been made on the lower Pomeroon River, the Essequibo Coast, and the lower Demerara River. The general work of preparation and

(1) Hitchcock, A. S. Grasses of British Guiana. In Contr. U.S. Nat. Herb. v. 23: 6, 1923.

mounting has been carefully and satisfactorily performed by the Herbarium Assistant.

BOTANICAL LIBRARY.

A cumulative index of the issues of 'Hooker's Icones Plantarum' present in this library has been compiled; this contains some 2,600 entries. The usual publications have been received during the year.

I have the honour to be,

Sir,

Your obedient Servant,

R. A. ALTON,
Assistant Botanist and Mycologist.

THE DIRECTOR OF SCIENCE AND AGRICULTURE.

**REPORTS OF THE DEPARTMENT OF SCIENCE AND AGRICULTURE
FOR THE YEAR ENDED 31st DECEMBER, 1924.**

APPENDIX IV.

REPORT ON AGRICULTURAL INSTRUCTION.

APPENDIX IV.

BOTANIC GARDENS,
GEORGETOWN, DEMERARA,
30th April, 1925.

SIR,

I have the honour to submit a report on Agricultural Instruction from the North West District, the Pomeroon District, the East Coast, Demerara, the County of Berbice, and the Districts under the Agricultural Instructors as well as an abstract of the report of the Superintendent of District Gardens.

2. In the North West District the rubber cultivation on the higher lands has much improved, and many of the trees are now free from disease. The records of the growth of the Hevea and Balata trees are being carefully kept. Owing to the great improvement in the drainage of the East Coast District, Demerara, larger returns of agricultural produce are expected. Throughout the County of Berbice the weather conditions during the year were favourable to the growth of crops.

Weather conditions in the Pomeroon were also good for plant growth. This district reports an increase of 240 acres in the area under ground provisions.

Valuable advice was given by the Agricultural Instructors in all the districts, and reports show that their efforts have been attended with success.

3. The Agricultural Instructor, North West District, reports :—

“Regular visits were paid to the farms during the year under review, and practical demonstrations were held in the field. Lessons in connection with the various crops cultivated, the treatment of the soils, and the control of plant diseases and insect pests were given. I also gave lectures on agriculture to the farmers and school children.”

COFFEE.

“I am glad to be able to report that the area under cultivation has been extended by 235 acres during the period under review, and there is a general improvement on many of the cultivations.”

CACAO.

“On the whole the cultivation has been fairly well maintained, and will be pushed on as far as practicable.”

RICE.

“During the year twenty-two acres were planted. The crop which was harvested gave a very poor yield, and a considerable percentage of the padi was destroyed by birds. The crop was practically a failure.”

RUBBER.

“A large number of the trees have died out on the grants of the Consolidated Rubber and Balata Estates, Ltd. No cultural work has been carried out on the cultivation which is in a semi-state of abandonment.”

LIMES.

“The area under cultivation remains the same as in the previous year, and many of the trees are producing large and juicy fruits.”

COCONUTS.

“This cultivation is on the decline, and the farmers are now convinced that the pegass soil is unsuitable for growing this palm.”

BANANAS, GROUND PROVISIONS AND CORN.

“The area under these crops has been reduced by 44 acres, the cause being due to shortage of agricultural labour. I am however, glad to be able to report that the farmers did their utmost to maintain their cultivations in good order, and many of them are running their farms on thorough agricultural lines.”

4. The Agricultural Instructor, Belfield, East Coast, reports as follows :—

“The year under review was one of great possibilities from an agricultural point of view. The weather conditions were all that could be desired, but the farmers in the lower part of the district were too pessimistic to take full advantage of their opportunities.”

“The installation of pumping stations has helped to alleviate all fears that the crops will be lost in future, but one has to consider that the peasant proprietors in these parts have become so suspicious after the frequent inundations, that it will take time to awaken new interests in cultivating their lands to the fullest extent.”

“In some places an attempt was made by some farmers to reclaim lands, which had been thrown out of cultivation, with such success that others are beginning to follow the example.”

RICE.

“The rice cultivation which shrank considerably during the last three or four years remained almost the same for want of capital and a better market.”

CANE-FARMING.

The area under farmers' canes was the same as in the previous year.

GROUND PROVISIONS AND PLANTAINS.

“Where drainage existed there was a considerable increase in the acreage under plantains and ground provisions; excellent results were obtained as regards the crops reaped, and the prices obtained for same were satisfactory.”

5. The Agricultural Instructor, New Amsterdam, Berbice, reports as follows :—

“The condition of the weather during the period under report was favourable to all cultivations.”

“Regular visits were paid to the farmers in the various parts of the district. I am pleased to report that there has been great improvement shewn on the farms, especially with respect to drainage. The crops under cultivation are divided under two heads :

“(a) Grounds provisions which comprise plantains, bananas, cassava, tannias, eddoes, yams, sweet potatoes, Indian corn (maize), peas and rice.”

“(b) Permanent crops consisting of citrus varieties, sapodillas, avocado pears, guavas, breadfruit, cacao, coffee, coconuts, etc.”

“The cultivation of ground provisions has slightly increased due to favourable weather conditions. Greater attention has been given to the planting of maize, sweet potatoes, yams, cassava, plantains, and bananas, and the yield per acre was very satisfactory. When the new Government drainage schemes are completed much larger returns are expected as the Corentyne Coast possesses very rich soils suitable for growing all tropical crops.”

RICE.

“The weather being favourable every effort was made to increase the acreage of the previous year. The acreage in Berbice was over 17,000 acres and the yield per acre has been estimated at 17 bags. There is still a large number of farmers who do not adhere to planting at the proper time although instructions

“are imparted to them regularly. The condition of the crop was exceedingly healthy except in a few places where there was evidence of a bug (probably the *Mormidea poecilata* Dall), which insect sucks the padi immediately after fertilization. This insect, however, did not cause any considerable damage.”

COCONUTS.

“This crop is sparsely cultivated throughout the villages, but there are several coconut estates. On very few of these properties has sufficient care been taken to keep the cultivations free from weeds and bushes; and only one weeding a year is given. This is a deplorable state of affairs; for in consequence there is a great reduction in the number of trees bearing.”

CACAO.

“The cultivation of cacao has shewn slight improvement. Demonstrations in pruning, and selecting good healthy pods for future planting were given during the year. The plants are doing very well, but much more work is required to be carried out by the farmer to control the witch-broom disease which has infested the cultivations.”

6. The Agricultural Instructor, Marlborough, Pomeroy, reports as follows:—

“Visits of inspection were paid to the farms, and advice given as to the cultivation of the crops. The importance of good drainage was explained, and the careful selection of seed was shewn to result in crops of better quality and higher yield. Rotation of crops was also shewn to be most beneficial especially when leguminous crops were included. The control of disease and insect pests was also explained. Of great importance in disease control was the planting of healthy plants.”

“Farmers were advised to plant more ground provisions. The fact that sweet potatoes, which are at present largely imported, could be easily and profitably grown locally, was brought to their notice.”

“The prices paid to farmers for their produce was satisfactory. Coconuts advanced in price while coffee has also shown an upward tendency.”

COCONUTS.

“The area under coconuts shows an increase of 81 acres. Careful selection of nuts for planting from trees of not less than 25 years of age was recommended. I explained the great necessity of proper drainage, and the clearing of bush from between the trees.”

COFFEE.

“An increase is also shown under this head, the amount being 73 acres. Improvement in the condition of the coffee farms continues to be observed. Weeding gets better attention and the removal of bird-vine is regularly carried out, and trees are well pruned at the proper time. The farmers are finding out that it pays to give proper attention to the crops as a better return results, and the good prices at present prevailing act as a stimulant in encouraging the farmers to keep their farms up to the mark.”

CORN.

“The area under corn has increased by 158 acres during the year. The quality grown was good, and the yield fair. This is attributed to a better appreciation of seed selection.”

GROUND PROVISIONS AND PLANTAINS.

“The increased area under this head is 244 acres. It is important that more care be taken in the selection of suckers from healthy fields.”

DISTRICT AGRICULTURAL INSTRUCTORS.

7. Twelve monthly reports were received from each of the following District Agricultural Instructors:—

John E. Wilson, in charge of the Essequibo Islands District; R. R. Pasea, in charge of the North Eastern Section, Essequibo Coast; C. Humphreys, in charge of the East Bank Demerara River District; J. M. Cush, in charge of the Berbice River District; J. M. Antrobus, in charge of the West Bank and Canals Polder District; Demerara River; R. R. Ross, in charge of the West Coast Berbice District; Thomas A. Archer, in charge of the Parika and Leguan District; D. W. Fingal, in charge of the Corentyne District; D. D. Haynes, in charge of the Mahaica-Mahaicony District.

8. The Instructor in charge of the Essequibo Islands District continues to give useful instructional work, especially with regard to drainage and seed selection.

9. The reports of the Inspector in charge of the North East Section of the Essequibo Coast show that he gave special instruction to rice and sugar cane farmers, and in the improvement of stock.

10. The Instructor in charge of the East Bank, Demerara River District, reports that he gave instructions principally in the control of plant disease and pests.

11. According to the reports of the Instructor in charge of the West Bank and Canals Polder District, instruction was given in drainage, pruning and weeding.

12. The reports of the Instructor in charge of the West Coast Berbice District show that valuable advice was again given in control work in connection with plant diseases and pests and the improvement of stock.

13. The Instructor in charge of the Parika and Leguan Districts show that good advice was imparted to the farmers especially in the improvement of stock, the destruction of trees infected with Bud-rot and the early planting of rice.

14. Reports submitted by the Instructor for the Mahaica-Mahaicony District indicate that advice was given in connection with plant diseases and pests on the coconut plantations. An improvement in this District has been noticed. Advice was also given as to the proper time for planting rice.

15. Reports handed in by the Instructor in charge of the Corentyne District show that the farmers have shown great improvement especially with regard to drainage. The weather was suitable for all kinds of crops. The farmers who planted rice at the proper time benefited by larger crops of good quality grain. A further improvement in the cultivation of rice has been noted.

16. During the year under review the following District Gardens were regularly inspected:—

Bourda, Georgetown, Demerara;
Houston, East Bank, Demerara;
Belfield, East Coast, Demerara;
Den Amstel, West Coast, Demerara;
Wakenaam, Essequibo;
Suddie, Essequibo; and
Stanleytown, New Amsterdam, Berbice.

The Agricultural Assistant gave lectures and demonstrations in gardening to the school children at each of these District Gardens, and the instruction given has been greatly appreciated by the pupils.

A good number of the children, after instruction, succeed in forming gardens at their own homes and compete for prizes ; and excellent results are being obtained through the continued efforts of parent, pupil and teacher.

17. The following are the numbers of children attending the school gardens:—

Gardens.	...	...	Attendances.
Bourda, Georgetown, Demerara	...	...	4,128
Houston, East Bank, "	...	...	2,146
Belfield, East Coast, "	...	...	2,827
Den Amstel, West Coast,	...	...	1,678
Wakenaam, Essequibo ...	...	...	1,664
Suddie, " ...	...	...	1,789
Stanleytown, New Amsterdam, Berbice...	...	...	1,103
			<hr/>
			15,330
			<hr/>

I have the honour to be,

Sir,

Your obedient Servant,

W. FRANCIS,
Assistant Director.

THE DIRECTOR OF SCIENCE AND AGRICULTURE.

REPORTS OF THE DEPARTMENT OF SCIENCE AND AGRICULTURE.
• FOR THE YEAR ENDED 31st DECEMBER, 1924.

APPENDIX V.

REPORT ON THE WORKING OF THE BIOLOGICAL DIVISION.

APPENDIX V.

BIOLOGICAL DIVISION,
5TH FEBRUARY, 1925.

SIR,

I have the honour to submit the following report on the working of the Biological Division of this Department for the year 1924.

The subjects which have engaged the attention of the Division during that period will be dealt with, according to custom, under the various crops concerned, followed by such miscellaneous investigations as have also been undertaken.

I was absent from the Colony on short leave from 1st to 30th April, on the grounds of urgent private affairs. During the absence on leave of the Honorary Secretary of the Committee of Correspondence and Exhibition, I acted in this capacity from May to October, and served as honorary Secretary to the Committee appointed to enquire into the working of the British Guiana Museum.

Sugar-cane.—Perhaps the most important happening with regard to sugar-cane during the year from an entomological point of view was the introduction into the colony of a small number of what is generally known as the Cuban tachinid parasite of the small moth borer, viz., *Euzenilliopsis diatrueae* Towns. This introduction was carried out by Mr. Harold E. Box, working under instructions from Messrs. S. Davson & Co., part of the cost of the undertaking being defrayed by the B. G. Sugar Planters' Experiment Station. Porto Rico was the island selected by Mr. Box as the source from which the parasites were to be obtained, being the most suitable place with regard to transport facilities, at the same time it being possible to obtain adequate material there for his project. Mr. Box left Georgetown on 24th April, and returned on 13th July. The parasites which were brought to the colony were liberated in the fields at Pln. Blairmont, Berbice. As to the success of this venture, either from a purely entomological, or from a commercial, point of view, it is impossible at present to make any statement, for no attempt as far as I am aware, has been made up to the time of writing to ascertain if the parasites have established themselves in this colony.

As this report is being written a publication entitled "Sugar Cane Insects 1924" by Messrs. T. E. Holloway and W. E. Haley, of the U. S. Department of Agriculture, has been received, in which the soaking of tops in cold water for 72 hours is recommended as a means of aiding in the control of the small moth borer. This method was recommended by me in a paper entitled "Notes on the Small Moth-Borers of Sugar-Cane in British Guiana" published in the Jl. Bd. of Agric., October 1922, and in the Bull. Ent. Res., Vol. XIII., Pt. 4, April 1923, and also in the report of this Division for 1922, and had actually been used by me early in 1921. Unfortunately, one cannot yet say that it is the general practice in this colony, in spite of the fact that the conditions here are considerably more in favour of such a method of control than in the U.S.A.

About the middle of July there was a severe outbreak of the Grass Looper, *Mocis repanda* Fabr., on sugar-cane throughout the colony, which in some instances completely stripped many acres of their leaves. This insect invariably appears in these enormous numbers after a period of long dry weather, as was the case this year, and on such occasions must be considered a serious pest. Although the damage done does not result in the death of the cane, and for that reason is liable to be looked on as of little importance by some persons, the complete removal of practically all the leaf area must of necessity set back the plants for several weeks—say two months. If this loss of growth be expressed in pounds of sugar per acre it will at once be seen that it is an appreciable amount, especially if the damaged area with some hundred and fifty acres in extent, as was observed in one instance.

The insect can be controlled with lead or other arsenate, either sprayed or dusted. Outbreaks can often be spotted weeks before they assume the proportions which they usually attain, for it is admitted in most instances that the caterpillars are noticed feeding on grass before they attack the canes, often commencing on the dams or in abandoned fields. Fields which are not clean weeded and contain a fair amount of grass are for this reason severely attacked. As soon as the first signs of an attack is observed a careful watch should be kept upon it, and at the least sign of its spreading, gangs should be turned on to spray or dust the area. In this connection it would be advisable for every estate to keep a stock of one of the poisons and the necessary spraying or dusting apparatus; they might not often be used, but when the necessity arises the advantage of having them at hand—in good working order—and being thus able to frustrate the attack at its start, would amply repay the small outlay.

As was expected from previous experience with this pest the generation which followed did no appreciable damage, in fact were hardly to be observed, and this was no doubt due to the appearance of natural enemies, which got the pest under control. Until the present outbreak none of these enemies of this pest had been observed in this colony, but on this occasion a Sarcophagid fly, *Sarcophaga chrysoptoma* Wied., was reared from the pupae of *Mocis*, and this insect no doubt did much to control the pest.

During the year certain canes at the B. G. Sugar Planters' Experiment Station were observed to be "mottled" and came under suspicion as being possibly affected with Mosaic Disease. In conjunction with Mr. R. A. Altson, Assistant Botanist and Mycologist of this Department, investigations were undertaken.

In this connection a collection of Aphids on grass and other hostplants was made, including sugar-cane, the species collected on this hostplant proving to be *Hysteronensa setairae* Thos. A list of other aphids collected, together with their hostplants, will be given elsewhere in this report.

Coconuts.—There was no serious outbreak of any pest on coconuts during the year. In August, on the northern side of Wakenaam Island, coconut palms were attacked by the large locust *Tropidacris latereillei* Perty, but the damage done was not extensive. As has been observed in previous outbreaks of this pest in other parts of the colony, the insects were feeding principally upon Quassia bitters (*Quassia amara*) growing on the sand reef and only turned their attention to coconuts later.

The more one sees of the coconut areas in the colony, the more one is impressed by their generally unkempt state and the lack of any real cultivation of the crop. To ascribe as reason for this is not always easy, but at least in a very large proportion of the cases it can be attributed to the fact that land itself in this colony is too easily, or too cheaply, acquired, and in individuals whose circumstances—and circumstances must here be employed in its wide sense—do not allow of their properly handling but a small acreage are in possession of holdings many times the size of that which they can beneficially occupy. It is such unkempt condition of coconut groves, often in conjunction with pecuniary incapability of the owners, that makes it difficult if not impossible to offer methods of control against insect pests. Coupled with the prevailing indifference in such matters and an attitude of passive resistance—to hinder rather than to help—these may be taken as characteristic of the mentality of the general cultivator of the colony, and these difficulties occur with practically every crop grown in the colony.

MISCELLANEOUS INVESTIGATIONS.

Timber boring Beetles.—The determinations of beetles attacking greenheart reported in my previous report were received during the year and are given below. These determinations were made by Colonel Winn Sampson, through the Imperial

Bureau of Entomology. At the same time a collection of beetles attacking walaba wood were also made, and the names of these insects are also given below.

Greenheart boring beetles:—

Platypus mulsanti Chap
Platypus alternans Chap. var.
Platypus sp.

Walaba boring beetles:—

Xyleborus obruens Smp. sp.n.
Xyleborus torquatus Eich.
Xyleborus affinis Eich. var.
Xyleborus intersetosus Bldf.
Xyleborus confusus. Eich.
Xyleborus fuscatus Eich.
Xyleborus sp.
Platypus sp.
Silvanus trivialis Crouv.

Of the species collected one, *Xyleborus obruens* Smp., proved to be entirely new to science.

Mosquitoes.—An interesting investigation which was commenced towards the close of the year was the breeding of certain mosquitoes along the foreshore of Kitty Village in the vicinity of Georgetown. The result of this investigation revealed the fact that the Anopheline mosquito, *Anopheles tarsimaculata* Goeldi, breeds at certain times in the salt water pools in this area. The well known salt-marsh species *Aedes taeniorhynchus* Wied., was also found breeding in this area.

The question of Anopheline mosquitoes breeding under such conditions will be further investigated, and if the result warrant it an account will be published at a later date.

Aphids.—As mentioned elsewhere in this report a collection of some commoner aphids were made, and the following is the list of species collected with their host-plants.

Carolinaia cyperi Ainstee. on *Cyperus rotunda* "nut-grass."

Hysteroneusa setairae Thos., on *Panicum barbinode* "Para-grass" also Sugar-cane and Sorghum.

Aphis maidis Fitch., on Sorghum, Indian Corn and *Panicum barbinode*.

Aphis gossypii Gov., on Cotton and *Ruellia tuberosa* "Many-roots."

Aphis sp., on *Ruellia tuberosa*.

Collection and Card Index.—The collection continues to increase, and the keeping of it in good condition occupies a good deal of time. This collection as it increases in size becomes more and more valuable, especially as a large proportion of the insects have been determined by specialists in the various orders.

A considerable amount of work was done during the year in the cataloguing of the collections, and over 7,000 new cards were prepared. When the system is completed it will be highly efficient.

Consignment of insects for determination have been regularly sent to the Imperial Bureau of Entomology during the year. The Bureau has been of the greatest assistance to the Division in this and other ways.

I have the honour to be,

Sir,

Your obedient Servant,

L. D. CLEARE, Jr.,
Government Economic Biologist.

The Director,
Science and Agriculture.

**REPORTS OF THE DEPARTMENT OF SCIENCE AND AGRICULTURE
FOR THE YEAR ENDED 31st DECEMBER, 1924.**

APPENDIX VI.

REPORT OF THE VETERINARY DIVISION.

APPENDIX VI.

SCIENCE AND AGRICULTURE DEPARTMENT.

VETERINARY DIVISION,
Georgetown, Demerara.

23rd March, 1925.

SIR,

In submitting my report for the year ended the 31st December, 1924, I have the honour to state that the general health of the live stock of the Colony has been satisfactory. I am glad to be able again to record the absence of Anthrax.

Owing to owners of animals notifying sudden deaths sooner than formerly, we have now more efficient control over any possible outbreak of disease.

LIVE STOCK AT THE GARDENS.

2. *Pure Bred Cattle* :—

Bulls	...	Holstein	...	1
Bulls	...	Guernsey	...	1
Cows	...	Holstein	...	2

Calves :—

Bull	...	Holstein	...	1
Heifer	...	Holstein	...	1

These animals were imported during the year. The cows calved a few months after their arrival. They are not related, and were served by different bulls, so that in a few years' time we should have a good herd of Holsteins. The imported Holstein bull is a particularly fine animal.

3. The White Leghorns, 2 cocks and 12 hens, imported during the year, are doing remarkably well. They have laid 1,000 eggs already, and these have been sold at \$1.20 per dozen.

LIVE STOCK AT ONDERNEEMING FARM.

4. Thoroughbred	Shorthorn	Bull	...	1
Thoroughbred	Shorthorn	Heifer	...	1
Cows	...	...	...	21
Bull calves	...	...	...	4
Heifer calves	...	...	...	4

Sheep :—

Imported rams	...	...	...	1
Local rams	...	...	...	4
Ram lambs	...	...	...	1
Ewes	...	...	...	21

Buffaloes :—

Bulls	...	...	...	2
Cows	...	...	...	7
Heifers	...	...	...	8
Calves	...	...	...	3

Pigs :—

...	...	...	...	38
<i>Fowls</i> :—				
Plymouth Rock	Cocks	...	...	12
Plymouth Rock	Hens	...	...	21
Chicks	...	...	...	2

The whole of the stock has kept in good health and is in fair condition with the exception of a few cows that I suggest be disposed of.

PENAL SETTLEMENT.

5. Thoroughbred Shorthorn Bull ...	...	...	1
Cows	...	...	22
Young Bulls	...	..	3
Heifers	...	...	6
<i>Buffaloes :—</i>			
Bulls	...	...	2
Cows	...	...	8
Young Bulls	...	...	2
Heifers	...	...	4

The Stock is in splendid condition and has kept in perfect health during the year. I would like to see the pastures get a good top dressing of lime as I am sure this would greatly improve the quality of the grass.

During the year freshly imported Plymouth Rock fowls were sent up, which, I am sorry to state, have not done well.

MOUNTED POLICE.

6. The following is a table of the year's work :—

	A. Troop.	B. Troop.
Number of visits paid in 1924 ...	61	55
„ of animals on strength	22	23
„ of horses died ...	Nil.	Nil.
„ of horses purchased ...	Nil.	6
„ of horses condemned ...	3	3

There was no sale of Police horses during the year. Six animals were removed from the force:—one destroyed, three superannuated, one for the Police Ambulance and one to the Stud Farm. Excepting the last mentioned, old age was the deciding factor in disposing of these horses.

Forage supplied by the contractors has been of good average quality, the oats being well above contract weight per bushel.

The average age of the horses now stands at about 9 years. For 50 horses this can be considered a useful average.

The last of the originals who commenced service with the Mounted Police in 1905 “the date of their inception” was superannuated.

STUD FARM.

7. The Government Stud Farm, started on 1st January, 1923, continued in existence during 1924.

Brood Mares	...	...	4
Three year olds.	...	..	4
Three foals	...	...	3

Sergeant-Major Billyeald, who is in charge of the Farm, makes on an average four visits weekly—inspecting the animals, and attending services given by the Stallion. Two old mares were destroyed. Four 3 year olds were taken over by the Mounted Police. Six mares were served by Waterbass. Waterbass and the Stallion donkeys are in good condition.

I have the honour to be,

Sir,

Your obedient Servant,

A. SETON MILNE,
Government Veterinary Surgeon.

THE DIRECTOR OF SCIENCE AND AGRICULTURE.

3 DEC 1927

C.S.O. No. 2481/26.



British Guiana.

REPORT

ON THE

DEPARTMENT OF SCIENCE AND AGRICULTURE,

FOR THE YEAR

1925.

Printed by the Authority of His Excellency the Governor.

GEORGETOWN, DEMERARA

"THE ARGOSY" COMPANY, LIMITED, PRINTERS TO THE GOVERNMENT OF BRITISH GUIANA.

1926.

No. 13,013.

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REPORT OF THE DEPARTMENT OF SCIENCE AND AGRICULTURE,
FOR THE YEAR ENDED 31st DECEMBER, 1925.

17

1st May, 1926.

1. The following is my report on the working of the Department of Science and Agriculture for the year ended 31st December, 1925. Appended to it are detailed reports relating to the several divisions of the Department as follows:—

(1) The work of the Chemical division appears in the report of the Government Analyst.—Appendix I.

(2) The general work of the Botanical division is dealt with in the report of the Botanic Gardens.—Appendix II.

(3) The report of the Assistant Botanist and Mycologist.—Appendix III.

(4) The report on Agricultural Instruction comprises.—Appendix IV.

(5) The work of the Biological division is shown in the report of the Economic Biologist.—Appendix V.

(6) The work of the Veterinary division comprises the report of the Veterinary Surgeon.—Appendix VI.

The Meteorological observations for the Calendar year 1925, taken at the Botanic Gardens, Georgetown, and at other stations in the Colony, will be published as a separate report.

STAFF.

2. *Head Office.*—The Assistant Director resumed his duties from leave of absence on 21st January.

Mr. C. L. C. Bourne, the Director's Scientific Assistant and Editor of the Journal of the Board of Agriculture, was absent from the Colony on leave from 6th April to 29th September.

Miss A. Jardim, 6th Class Clerk, was absent from the Colony on leave from April 15th to October 16th, and Miss L. Fernandes was appointed to act during her absence especially in connection with the re-writing of the "Geology of the Gold-fields" by Sir J. B. Harrison.

Miss N. Valladares, Clerical Assistant, resigned her post on the 31st July, and Miss O. Bardon was appointed to fill the vacancy on the 1st of August. Miss Bardon was absent on leave from 4th October to 2nd November.

Chemical Division.—As shown under the Head Office Mr. W. Francis, F.I.C., Deputy Government Analyst and Geologist, was absent from the Colony from the 1st to 21st January.

Mr. N. Newsam, 2nd Assistant Analyst, was absent on sick and vacation leave from the 14th April to 12th June.

Botanical and Agricultural Division.—Mr. C. C. Dowding, Resident Agricultural Instructor in the North West District, was on leave of absence in the Colony from 1st to 15th January.

— Mr. H. B. France, Agricultural Assistant in charge of the District Gardens, was absent from the Colony on leave from 17th April to 11th October.

Mr. W. H. Matthews, Resident Agricultural Instructor in the Pomeroon District, was absent from the Colony on leave from 17th April to 9th September.

Mr. Fitz Greeves, Senior Resident Agricultural Instructor on the East Coast District, was absent from the Colony on leave from 15th October to 31st December,

Mr. C. C. Dowding was transferred to the East Coast District in Mr. Fitz Greeves' place and Mr. E. L. McKinnon, foreman of the North West rubber station, performed Mr. Dowding's duties.

Biological Division.—Mr. L. D. Cleare, F.E.S., Economic Biologist, was absent from the Colony on leave from the 5th April to 8th November, special leave being granted to enable him to attend the Imperial Entomological Conference in London.

Veterinary Division.—Mr. A. Seton Milne, M.R.C.V.S., Government Veterinary Surgeon, was absent from the Colony on leave from 5th April to 20th November.

EXPENDITURE.

3. The total vote assigned to the Department by the Combined Court at its Session in November, 1924, for the year 1925 was \$91,262. The following additions were voted on Supplementary Estimates during the year 1925:—

- \$ 563—Veterinary Surgeon.
- \$ 563—Expenses, Economic Biologist attending Conference in London.
- \$1,000—Geological Handbook.

The total of the Estimates was therefore \$93,388. Of this amount there was at December 31st, 1925, an unexpended balance of \$4,480.68 as shown in the following:—

TABLE I.
ANNUAL ESTIMATES.

No. of Sub-vote.	Sub-vote.	Balances Unexpended.	Excess Expenditure.
1-17	Personal Emoluments—Fixed Establishment	...	\$ 7 61
18-27	Personal Emoluments—Exclusive of Fixed Establishment	\$ 592 86	...
OTHER CHARGES.			
28	Allowances for upkeep of Bicycles	17 00	
29	Commuted Travelling	247 52	
30	Travelling Expenses (General)	...	2 12
31-37	General Expenses	...	65 96
38	Chemical	6 08	
39	Gas and Electrical Heating	303 74	
40	Geological and Mineralogical	48 00	
41	Botanical	19 77	
42	Meteorological	...	28 22
43	Biological	62 82	
44-45	Botanic Gardens	3 18	
46	Other Government Gardens and Grounds	1 64	
47	Herbice Gardens	40 43	
48	Purchase, Production and Distribution of Seeds and Plants	6 45	
49 50	Experimental Fields	...	119 44
51-53	Department's Stations and Arable Farm, Underneeming	268 16	
54	Live Stock—Purchase of	265 03	
55	Live Stock—Maintenance of	169 07	
56	D'Urban Park	40 90	
57	Cutting Grass for Police Horses	78 98	
58	Advertising	60 00	
59	Grants-in-aid	75 69	
60	Subsidies	298 34	
61	Agricultural Apprentices	456 44	
62	District Gardens	...	6 59
63	Veterinary Preventive Measures	281 52	
64	Plant Pests Preventive Measures	125 89	
65	Contingencies	190 00	
67	Expenses Economic Biologist	335 19	
68	Preparation of the Colony's Geological Handbook...	715 92	
TOTAL		\$ 4,710 63	\$ 229 94

4. The payments into the Treasury during the year were as follows :—

Laboratory fees	...	...	\$ 274 35
Agricultural Division	...	...	1,354 98
Botanical Division: Economic and Ornamental plants	...	...	727 58
Sale of Official Publications	...	...	15 62
			<hr/>
			\$ 2,372 53

A sum of \$3,876.77 was also paid into the Treasury, being fines inflicted by the Magistrates on the vendors of adulterated foodstuffs who were prosecuted on the strength of certificates issued by the Chemical Division of this Department.

5. The following are the abstracts of the Meteorological observations recorded at the Botanic Gardens, Georgetown, and at the Penal Settlement, Mazaruni, during the year 1925 :—

Meridian of longitude for calculation of time adopted as standard in the Colony	...	...	60° W.
Hours slow of Greenwich time	...	...	3.45

GEORGETOWN.

The meteorological station is situated in the Botanic Gardens, at a distance of 1.45 miles south of the coast-line. The hours of observation are 7 a.m., and 1 and 6 p.m., local official time which is 3 hours and 45 minutes behind Greenwich time. The height of the barometer is 6 feet 6 inches above the mean sea-level.

During the year 1925, the air temperature in the shade for the months of January, February, March and June was lower than the means recorded over the period 1846-1925. The highest temperature recorded was 90.0° F. on the 30th August, while the lowest was 69.0° F. recorded on the night of 25th January. The mean shade temperature for the year was 80.3° F. or 0.1° F. below the average from 1846 to 1924. The total rainfall was 63.25 inches, the lowest recorded since 1899, as compared with 86.18 inches in the year 1924, and with 91.65 inches for the period 1880-1924. The monthly distribution of the rainfall was abnormal—the precipitation in January being 3.7 inches or 3.95 (inches) below the average of 1846 to 1924 while the precipitation in March was 14.82 inches the highest fall for the year. This was followed by November with a fall of only 0.53 inches, the lowest for the year, and 5.5 inches below the average for that month. For the months of July to December inclusive the total rainfall was 24.43 inches or 16.10 inches lower than the normal. The evaporation from a free water-surface a six feet square tank at the ground level was 61.51 inches as compared with a normal evaporation of 57.90 inches; the evaporation for 1925 being 97.24% of the total rainfall. The total amount of the bright sunshine for the year was 2,671.7 hours as compared with 2,671.2 hours in 1924 and with 2,682.4 hours in 1923 and was 218.1 hours above the average from 1846 to 1924. The mean radiation temperature (blackened bulb in vacuo) was 5.8° higher than normal and 1.2° lower than that of the previous year, the maximum monthly record during the year being 152.6° for October, while the highest daily record 162.0° occurred on the 27th April. The mean minimum temperature recorded at night on grass was 1.0° higher than the average. The mean velocity of the wind was 7.21 miles per hour, the maximum velocity being 20.00 miles per hour.

MAZARUNI.

A sub-station established at the Penal Settlement, Mazaruni River, is in longitude 58° 38' 45" W. and latitude 6° 23' 35" N. at a distance of 42 miles south of the coast-line. The hours of observation are the same as at the main station in Georgetown. The height of the barometer is 55 feet above mean sea-level.

During 1925 the mean air temperature in the shade was 78.3° F.; the maximum temperature recorded being 91° on the 17th and 18th October, while the minimum 62° occurred on the 19th January. The total rainfall was 118.65 inches or 17.78 inches higher than the average of preceding years. The general distribution of the rainfall was far in excess to that of Georgetown. In the months of August, September, October, November and December the rainfall was 14.60, 10.04, 6.08, 7.44 and 4.70 respectively in excess of that of Georgetown for the same months. Rain fell on 195 days in the year as compared with 187 days in Georgetown. The total amount of bright sunshine recorded during the year was 2,118.2 hours as compared with 2,671.7 hours at Georgetown.

GENERAL AGRICULTURE.

6. The areas under experimental cultivation at the different stations of the Department during the year were as follows:—

TABLE II.

Products.	Acreage.
Rubber, Para, ...	36
Rubber, Sapium ...	2
Rubber, Other sorts ...	5
Limes ...	7
Coconuts ...	3
Sugar Cane ...	20
Rice ...	15
Balata ...	4
Tonka Beans ...	1
Carludovica Palms... ..	1
Ground Provisions (various) ...	5
Bananas ..	3
Cotton () ..	1
Fibres ..	1
Legumes ..	2
African Oil Palm ...	3
Corn (Maize) ..	1
Tibicusi—Letter Wood ..	1
Coffee (various) ...	1

This Table does not include the acreage under experimental cultivation at Onderneeming Farm. There are planted on that farm at present the following:—

3,650 Cacao trees.
 3,200 Coffee trees.
 3,700 Lime trees.
 600 Para Rubber trees.
 800 Coconut palms.

7. *Sugar.*—As indicated in paragraph 40 of the 1919 report, the Agricultural Experiments and the Field trials in sugar-cane are now dealt with in the report of the British Guiana Sugar Planters' Experiment Station Committee.

8. The total area in sugar-cane cultivation in the Colony during the year 1925 was 57,190 acres, an increase of 2,060 acres on the area occupied by the crops of 1924. Enquiries show that the area under cultivation for the ensuing year 1926 will be more than the area occupied in 1925; as 57,500 acres are reported to be under sugar-cane on December 31st, 1925, of which 3,400 acres are returned as cultivated by cane-farmers.

11. The average yields in tons of commercial sugar per acre of the principal varieties reaped during the crops of 1925 as deduced from returns supplied by the managers of the sugar plantations were as shown in Table VI. Owing to the richness and purity of the juice, the yield of sugar per acre was approximately two-fifths of a ton more than in 1924.

TABLE VI.

Varieties of Sugar-cane.	Plantations.		Tons Sugar per acre.	
	No. reporting.	Areas reported in acres.	Mean.	Maximum.
B.H. 10 (12)	6	192	2.65	3.06
D. 118	6	1,086	2.65	3.11
D. 419	3	109	2.49	3.30
D. 145	10	2,342	2.38	2.80
Diamond #7	2	282	2.34	2.42
D. 109	4	86	2.25	3.40
Bourbon	4	43	2.25	2.69
D. 625	22	27,971	2.22	2.98
Ba. 6032	5	120	2.12	6.18
D. 625 mixed with Bourbon and other seedlings ...	14	7,438	2.10	2.92
B. 206	4	376	1.95	2.32
Green Transparent	2	32	1.88	2.00

12. As owing to financial and to labour difficulties many of the smaller plantations were not able to keep up their cultivation as they would otherwise have done, so that their crops were short, it is desirable to record separately the results obtained by the larger and more favourably situated plantations. These results were :—

TABLE VII.

Varieties of Sugar-Cane.	Plantations.		Tons sugar per acre.	
	No. reporting.	Areas reported in acres.	Mean.	Maximum.
B.H. 10 (12)	4	168	2.85	3.06
D. 118	5	1,058	2.65	3.11
D. 419	3	109	2.49	3.30
D. 625	16	25,245	2.40	2.98
D. 109	3	80	2.40	3.40
D. 145	10	2,342	2.38	2.80
D. 625 mixed with Bourbon and other seedlings ...	9	4,251	2.38	2.92
Diamond #7	2	282	2.34	2.42
Bourbon	4	43	2.25	2.69

13. The results of large-scale field-trials with other varieties on the Sugar Plantations are shown in the following table :—

TABLE VIII.

Variety.	Acreage.	Yield.
D. 433	7	2.92
D. 108	16	2.89
R.P. 21	18	2.85
D. 747	5	2.80
R.P. 8	438	2.73
D. 197	35	2.64
Diamond 185	4	2.64
Diamond 581	51	2.42
R.P. 20	27	2.40
D. 199	23	2.33

14. The production of sugar on the sugar plantations for the year 1925 was 107,580 tons from 55,676 acres as compared with 90,875 tons in 1924 from 51,355 acres, while the export amounted to 97,714 tons, the latter an increase of 11,818 tons on that of 1924. The export of rum was 1,148,119 proof gallons as compared with 769,308 gallons in 1924. 1,345,243 gallons of molasses were exported during the year. The export of molascuit or cattle food was 1,268 tons.

15. The following Table shows the actual production of sugar and the amounts exported during the year 1911-1925 :—

TABLE IX.

	SUGAR, TONS.		
	Produced.	Exported.	Home consumption or in store.
1911	108,175	98,453	9,722
1912	86,410	77,821	8,589
1913	106,211	87,414	*19,217
1914	116,622	107,138	9,484
1915	119,091	116,224	2,867
1916	114,292	101,650	12,642
1917	108,181	114,407	...
1918	107,580	93,901	13,659
1919	86,971	83,139	3,832
1920	87,188	83,785	3,421
1921	110,985	108,270	2,715
1922	101,128	90,570	10,558
1923	90,758	83,166	7,592
1924	90,875	85,896	4,979
1925	107,580	97,714	9,866
Average 1911-25...	102,801	95,301	7,500

* Including sugar destroyed by the 1913 fire in Charlestown.

The local consumption of sugar has been, in round figures, during the period 1911-1925, 7,500 tons a year.

The following Table shows the annual acreage planted in sugar cane, the acreage reaped each year and the total amount of sugar produced, for the years 1919 to 1925 and the average for the period 1919 to 1925. It also shows the average production of sugar per acre under cultivation and per acre reaped :—

TABLE X.

Period.	Area under cultivation in acres. (English acres.)	Area reaped per annum. Acres. (English acres.)	Average Tons of Sugar per annum.		
			Total.	Per acre under cultivation.	Per acre reaped.
1919	70,876	55,944	86,971	1.23	1.55
1920	69,532	58,222	96,210	1.38	1.65
1921	63,420	58,027	107,815	1.70	1.85
1922	60,761	56,547	101,095	1.66	1.79
1923	57,814	50,510	89,811	1.55	1.78
1924	57,200	51,355	90,875	1.60	1.77
1925	57,500	55,676	107,580	1.87	1.93
1919-25	62,443	54,823	96,910	1.56	1.77

RICE.

Experimental.

16. The experiments with varieties of rice were continued at the Experimental Fields. As in the previous years the varieties of proven value were planted in the North field on duplicated half acre plots. This year alternate plots in this field were manured with sulphate of ammonia at the rate of 225 lbs. per acre, with the following results:—

TABLE XI.

Variety or Strain.	Selected Varieties.		Bags of 140 lbs. per acre.	
	Average Yield of non-manurial plots.	Average Yield of manurial plots.	Increase No. of bags per acre on manurial plots.	Per cent. of increase per acre.
No. 75	29.83 bags	35.88 bags	6.04 bags	20 per cent.
No. 77	27.32 "	31.17 "	3.85 "	14 "
No. 78	29.30 "	32.46 "	3.16 "	10 "
No. 79	27.92 "	31.98 "	4.06 "	15 "
Dem-rara Creole	28.45 "	32.73 "	4.28 "	15 "
Variety H. 6	27.38 "	31.66 "	4.28 "	16 "
Strain 7	27.83 "	31.85 "	3.97 "	14 "

The yields of the non-manurial plots were considerably above the average for last year.

17. The duplicate and quadruplicate trials of Ceylon varieties and strains in small 1/10th acre plots were continued, the Demerara Creole and No. 75 being employed for the comparison of yields. The trials gave the following results:—

TABLE XII.

Comparison of Imported Varieties and other Strains with No. 75 and Demerara Creole.

Variety of strain.	Bags of 140 lbs. per acre.
No. 75	29.56
Demerara Creole	28.68
N.N. 2/8 (Ceylon)	27.97
M.D. 11 (Ceylon)	28.81
Bibili (Ceylon)	23.93
H.H. 3 (Ceylon)	19.16
H.J. 16 (Ceylon)	19.05
H.F. 14 (Ceylon)	17.86
Sulai (Ceylon)	16.78
Honderawella (Ceylon)	13.69
19 (Ceylon)	11.91
Mackenzie City (Demerara River)	23.24
Honduras	23.81

This has been the second trial of nine of the above varieties from Ceylon. Of these N. N. 2/8, M. D. 11 and Bibili are of promise, and gave a much heavier yield than the other six varieties.

18. Further trials with Ceylon and British Guiana Hybrid varieties were carried on on larger plots—approximately 2/15 of an acre—in the north west field. No. 75 being used for comparison. The results were as follows:—

TABLE XIII.

Varieties or strains.	Bags of 140 lbs. per acre.
No. 75	23.30
Hybrid No. 35	24.80
Hybrid No. 33	17.14
Hybrid No. 37	15.06
M. D. 11 (Ceylon)	22.66
Indersal (Ceylon)	25.71
H.F. 14 (Ceylon)	17.94
H.J. 16 (Ceylon)	18.06
19 (Ceylon)	20.57

19. *The North field, new extension.*—This field comprises an area of 3 acres. It was laid out and planted this year for the first time. It is a continuation of the North field on the western side. The beds in the field run east and west. Those of the old field run north and south, in order to get a comparison of the two systems to see whether it will affect the yield. With the exception of Berbice Creole and Hybrid 37, the returns from this new field were fairly good. As a rule when newly taken-in land is planted we get an abnormal growth of straw which is detrimental to the yield of paddy, especially if the land is rich in humus. It is therefore economical for a crop or two of corn to be taken off to reduce the richness of the soil before planting with rice.

20. The following varieties take fully 7 months to ripen:—Berbice Creole, Honduras, Honderawella, H.H. 3 and Nos. 33 and 37. These are not recommended for planting as they take too long to mature, and would not be ready in time to reap before the rains set in.

The following varieties are recommended for planting :—Nos. 75 and its strains Nos. 76, 78 and 79, Demerara Creole, H. 6 and strain H. 7. Other varieties require further trial before we can recommend them. Those recommended are all long-grained padi and take from 5 to 6 months to ripen.

21. The rice obtained from the following varieties of padi :—Nos. 75, Demerara Creole, H. 6, and of their several strains continue to be of excellent quality.

Millers are always desirous of obtaining padi for milling which was grown from these varieties and strains as they give the best results.

22. During the year 41,652 lbs. (18½ long tons) of seed-padi were produced at the Government Experimental Rice Fields of which 31,401 lbs. (14 long tons) were sold to farmers. The revenue from the sale of this rice-padi was \$431.13.

CULTIVATION.

23. The actual area occupied by rice cultivation in the Colony was returned at 29,333 acres, of which 10,557 acres yielded both spring and autumn crops, the area cropped being 39,890 acres. Of the total area 9,311 acres were used for rice-growing on sugar plantations. Due to the favourable weather conditions the crop was a fairly satisfactory one resulting in 38,403 tons, equal to 614,451 bags, of 140 lbs. of padi and equivalent to 23,042 tons, or to 286,745 bags of 180 lbs. of cleaned rice. The yield per acre reaped was at the rate of 15.4 bags of padi. The rice produced was of good quality and 6,918 tons were exported during the year 1925.

24. The rates of yields per acre reported from the various country districts varied widely. The following Table shows the yields per acre per crop in the districts :—

TABLE XIV.

DISTRICT.	Acreage reaped.	Bags of Padi of 140 lbs. per acre.
North West District	13	8.3
Esequibo Coast	8,655	15.5
Esequibo River	4,906	12.9
West Demerara	3,400	15.6
East Bank, Demerara River	335	15.4
East Demerara	3,085	14.2
Mahaica-Abary	3,273	18.0
West Coast, Berbice	4,155	14.2
New Amsterdam and Berbice River	5,725	17.9
Courantyne	6,644	13.2
The Colony (Total reaped)	39,890	Average 15.4

25. The relation of the rice-growing industry to the sugar-cane and other agricultural industries of the Colony during the period 1903 to 1925 is summarised in the following Table XV. in which the areas occupied by the various industries are given in British acres :—

TABLE XV.

Period.	Sugar-cane.	Rice.	Other Products.	Total area under cultivation.
1903	78,860	17,503	21,442	117,805
1908	74,866	39,743	33,356	147,967
1913	72,698	35,583	43,832	152,073
1918	73,565	60,433	63,890	197,887
1919	70,876	61,400	53,341	190,717
1920	69,532	55,246	51,214	175,992
1921	63,420	55,911	52,820	172,151
1922	60,760	49,070	46,170	156,000
1923	57,814	34,965	43,773	136,552
1924	57,190	29,406	49,698	136,294
1925	57,500	29,333	52,710	139,543

The area of land devoted in 1925 to the cultivation of rice was 21.0 per cent. of the total cultivated area of the Colony, while lands occupied with sugar made up 41.2 per cent. of such area.

Very large areas of the front lands of the Colony, pre-eminently suited for the cultivation of rice, are still not so occupied.

26. The gradual extension of the rice industry is illustrated in the following Table which gives at five-yearly intervals to 1922, and thence in years, the areas in British acres under rice in the counties of the Colony, and the total yields of padi and of rice in long tons:—

TABLE XVI.

Period.	Mean Rainfall Coastal Stations Calendar Year	Areas under rice cultivation. British Acres reaped.				Yields of British Guiana.				
		Berbice,	Demerara.	Essequibo.		British Guiana total acreage. (reaped)	Padi tons.	Rice, tons (60% yield of cleaned Rice from Padi)	Tons per acre.	
				Mainland	Islands				Padi	Rice
1898-1902 ...	88.2	4,874	1,592	308	...	6,778	6,374	3,824	0.94	0.56
1903-1907 ...	99.2	8,684	4,952	3,076	1,001	17,712	17,701	10,620	0.89	0.56
1908-1912 ...	99.1	16,893	13,862	5,042	3,941	38,746	50,010	33,006	1.25	0.75
1913-1917 ...	89.6	16,406	24,372	4,685	3,930	49,895	60,560	36,336	1.22	0.73
1918-1922 ...	92.9	32,151	16,073	4,983	4,799	58,048	47,514	28,508	0.82	0.49
1923 ...	80.9	16,460	10,824	7,010	4,421	38,715	33,270	19,962	0.85	0.51
1924 ...	83.54	17,196	10,978	7,383	4,715	40,272	42,100	25,260	1.04	0.62
1925 ...	63.25	16,524	10,093	8,655	4,618	39,890	38,403	23,042	0.96	0.58

COCONUTS.

27. The area returned as planted in coconut palms in the Colony was 29,979 as compared with 25,200 in 1924, an increase of 4,779 acres due to more complete returns having been made by cultivators. The practical abandonment of certain plantations owing to the prevalence of bud-rot disease, neglected control, and, still more important, unsatisfactory conditions of main and internal drainage has very greatly lessened what should have been the normal increase in planted areas. The development of the industry during five-yearly periods since 1904 is shown in the following Table:—

TABLE XVII.

Year.	No. of acres planted.
1904	5,140
1909	9,466
1914	15,894
1920	24,425
1924	25,201
1925	29,979

28. The production of coconuts during 1925 was returned as 17,616,000 nuts the export being 1,363,280 nuts. A large proportion of the crop was used for the production of oil for local use and of copra for export. The export of coconut oil was 30,394 gallons during 1925. The production of copra greatly increased, 17,277 cwts. being exported during the year under report, as compared with 16,508 cwts. in 1924. The equivalent in coconuts of nuts and products was 10,961,600 nuts.

The following Table gives the export of coconuts for quinquennial periods from 1892 to 1916:—

TABLE XVIII.

Periods.	Average Annual Exports.
1892-6	80,370 nuts.
1897-1901	21,890 "
1902-06	187,300 "
1907-11	526,900 "
1912-16	1,600,860 "

Since 1914 records have been available for the annual exports of coconut oil and copra. Assuming that 60 nuts yielded one gallon of coconut oil and that 450 nuts are equivalent to 1 cwt. of copra the export of coconuts and their products, in terms of coconuts, have been as follows :—

TABLE XIX.

	EXPORTS.			
	As Nuts.	As Oil.	As Copra.	Total Nuts.
1914-1921 (8 years) ...	2,452,000	1,204,000	688,000	4,324,000
1922 ...	2,131,000	1,763,500	940,500	4,835,000
1923 ...	2,650,000	1,597,000	3,780,000	8,027,000
1924 ...	1,559,800	1,308,240	7,428,600	10,296,640
1925 ...	1,363,280	1,823,640	7,774,650	10,961,570

29. The varieties raised at the Botanic Gardens from imported seed and from selected local nuts yielded satisfactory crops. Some especially selected nuts were distributed for planting purposes.

PARA RUBBER.

30. The total amount of rubber exported during the year was 10,752 lbs. This rubber was well reported on, and good prices realised.

At the Government Experimental Stations the following quantities of rubber were produced :—

North West Station ...	...	...	1,140 lbs.
Onderneeming Industrial school ...	...	...	1,298 lbs.

Owing to the increased market price of the raw material the area occupied by Para Rubber was increased during the year to 2,200 acres. Many estates are reclaiming abandoned areas, and bleeding the trees on them.

31. The average rates of growth of trees at the various stations have been as follows :—

TABLE XX.

Age of trees in years.	Girth in inches at 3 feet from the ground.				Age of trees.
	Onderneeming.	Isarora.	Georgetown.	Marlborough.	
1	3.0	2.0	1.0	2.0	1
2	8.7	4.5	3.3	7.0	2
3	12.7	8.0	4.7	9.0	3
4	17.7	8.5	6.5	13.0	4
5	21.0	13.2	7.0	15.5	5
6	22.3	15.2	7.3	17.0	6
7	24.0	20.4	9.7	23.9	7
8	25.2	21.5	9.7	25.2	8
9	28.7	27.5	11.7	32.3	9
10	30.0	29.0	12.3	35.0	10
11	32.6	31.3	13.0	...	11
12	34.5	35.0	13.0	...	12
13	43.7	35.5	13.0	...	13
14	44.1 (3)	38.1	14.0	...	14
15	45.9 (3)	39.6	14.0	...	15
16	48.0 (3)	40.7	15.3	...	16
17	50.0 (3)	42.1	15.4	...	17
18	51.3 (3)	...	17.4	...	18
19	51.8 (2)				
20	52.7 (2)				
21	57.5 (1)				
22	61.5 (1)				

(1) Three trees only.

(2) Seven trees only.

(3) Many of these trees were cut down in 1921.

An analysis towards the end of 1924 of the girths of the older trees planted prior to 1912 at Onderneeming and Issorora resulted as follows :—

TABLE XXI.

TREES.	TREES.			
	Onderneeming.		Issorora.	
	Number.	Per cent.	Number.	Per cent.
Girth at 36 inches from base.				
30 to 40	3	5.2	...	...
41 to 45	5	5.2	41	27.9
46 to 50	14	24.6	56	38.1
51 to 55	15	26.3	23	15.6
56 to 60	14	24.6	11	7.5
61 and over	8	14.1	16	10.9

The numbers and girths of the trees which are now over 59 inches in circumference at the two stations are as follows :—

TABLE XXII.

Girth Inches.	NUMBER OF TREES.				Girth Inches.
	Onderneeming.		Issorora.		
	1923.	1924.	1923.	1924.	
60	1	4	2	1	60
61	...	2	2	3	61
62	2	...	...	3	62
63	1	...	2	1	63
64	1	2	3	2	64
65	...	2	1	2	65
66	...	...	1	2	66
67	...	...	...	1	67
68	...	1	...	1	68
70	...	1	...	...	70
74	1	...	...	...	74
79	1	1	...	...	75
87	...	...	1	...	87
88	...	...	...	1	88

BALATA.

32. Eight thousand and seventy-eight cwts. of balata were exported during the year under report. This shows a decrease of four thousand one hundred and fifty-six cwts. as compared with 1924.

The balata trees planted experimentally at Issorora have attained the following measurements :—

TABLE XXIII.

	Circumference at 4 feet 6 inches from ground.	Height.
3 TREES 17 YEARS OLD—		
Mean	30 inches	46 feet
Maximum	31 "	47 "
Minimum	27 "	41 "
43 TREES 13 YEARS OLD—		
Mean	25 inches	39 feet
Maximum	34 "	45 "
Minimum	21 "	33 "
33 TREES 12 YEARS OLD—		
Mean	23 inches	32 feet
Maximum	27 "	39 "
Minimum	14 "	27 "
157 TREES 11 YEARS OLD—		
Mean	20 inches	29 feet
Maximum	26 "	40 "
Minimum	13 "	21 "

The mean rate of growth of the Balata trees has been slow, the average being 1·85 inches increase in circumference per annum, the maximum rate being 2·62 inches, and the minimum 1·17 inches.

Balata trees may therefore take 30 years from planting out for the trees of a group to attain the legal tappable size—a girth of 36 inches at 4 feet 6 inches from the crown of the roots although about half of them may attain this size in 20 years while the most rapidly growing trees may do it in 14 years. Hence it will not be feasible on plantations of balata trees to commence any tapping operations at an earlier period than 15 years from planting out.

COFFEE.

33. The acreage under this product during 1925 was returned at 6,243 acres. This area is occupied almost entirely with Liberian coffee. About 100 acres are planted with coffee in the empoldered areas of sugar plantations. The areas returned as under cultivation in coffee during the two preceding years were 4,240 and 5,765 acres respectively; but many cultivators who during these years had more or less abandoned the cultivation of their coffee fields have on account of high prices again brought the coffee thereon into cultivation and have to some extent added to the area occupied by coffee. The extent of the area under cultivation with coffee during recent years is indicated by the following Table:—

TABLE XXIV.

Year.			Area stated to be under Coffee cultivation.
1905	...	...	1,432 acres.
1910	...	...	2,546 "
1915	...	...	4,468 "
1920	...	...	5,050 "
1921	...	...	5,030 "
1922	...	...	4,240 "
1923	...	...	4,096 "
1924	...	...	5,765 "
1925	...	...	6,243 "

The quantity of coffee exported during 1925 was 5,964 cwts.

Most of the coffee grown in the Colony is consumed locally, that exported forming only a small proportion of the crop gathered.

CACAO.

34. The area reported as under cacao was 1,918 acres.

The lack of progress of the cacao-growing industry during the past 17 years is shown by the following Table:—

TABLE XXV.

Year.			Areas under Cacao.
1905	...	...	1,994 acres.
1910	...	...	2,016 "
1915	...	...	2,020 "
1923	...	...	1,903 "
1924	...	...	1,918 "
1925	...	...	1,918 "

All the cacao produced is used locally either in the production of chocolate or of confectionery. There are extensive belts of land on the northern reaches of the rivers of British Guiana well suited in climate, in altitude and in facilities for drainage for cacao-growing, and it is to be greatly regretted that this cultivation has not largely increased.

LIMES.

35. The area returned as planted in lime trees in the Colony during 1925 was 655 acres, the reduction in area being due to the abandonment of the cultivation at Agatah where the manufacture of citrate of lime and of concentrated lime-juice failed to give remunerative results. The industry is still carried on at Plantation Providence, Berbice, and at the Onderneeming Government Farm, Essequibo.

The returns from these plantations show that 8,233 gallons of concentrated lime juice and 287 gallons of essential oil of limes were produced during 1925.

There was not any citrate of lime exported whilst the exports of lime-juice and of essential oil of limes were 8,430 gallons and 306 gallons respectively.

GROUND PROVISIONS.

36. The acreage returned as being under ground provisions was 11,715 acres as compared with the maximum area of 18,239 acres in 1915, and with an area of 14,444 acres in 1924.

BANANAS.

37. One of the most important points in the growing of bananas and one to which very little attention is given by the majority of local farmers is the selection and the treatment of suckers for planting. I hear a great deal about seed selection, say, of maize and rice, and of increased crop returns and general improvement arising from any little attention to the matter, but very few banana-growers recognise how largely the careful selection of suckers affects the future life of the plantation, not only in regard to the yield of fruit but more particularly in regard to freedom from disease. Most farmers know that the sucker with greatest vigour is the one with a good bulb and with small, narrow leaves; this type of sucker is always a good grower, and always produces a good bunch. The size of the sucker is not of so much importance as the size of the bulb. The bulb is simply food stored away, and therefore the larger the bulb the larger the amount of food there is for the plant to use to tide over the shock of removal and replanting, as well as in the production of fresh roots in its new home.

I strongly advise the rejection of suckers with poor bulbs and trunks of uniform girth, and select only those with good bulbs and tapering (or "bottle-shaped") trunks; by so doing you will obtain vigorous plants, and will make the best of the soil and weather conditions. Of course, one of the most vigorous plants of all is the old bulb with all but only one eye pruned away; a plentiful supply of food is assured by the old butt, and the young plant, besides overtaking larger suckers in the matter of growth, produces a larger and better bunch. It is a mistake to split the bulbs into four and six "sets" or "slips," as some do, for the effect is positively to check vigorous development, and also to expose a large surface to fungus invasion. The less cut surface there is the less liability to fungus and bacterial attack.

The above points are most important especially in regard to the proposed development of an export fruit trade on a considerable scale.

AREA UNDER AGRICULTURAL PRODUCTS.

38. The following Table shows the number of acres under cultivation in 1925 with the more important products in the three countries. The records have been collated from the returns made to the District Commissaries or to the District Agricultural Officers by cultivators. As in former years, the figures are minimum ones, many cultivators being determined not to give reliable information regarding the acreages of their lands under cultivation and more especially accurate returns of the crops obtained therefrom owing to their idea that the statistics are required for purposes of future taxation instead of as guides as to the Colony's Agricultural progress :—

TABLE XXVI.

Counties.	Nature of Crops and Number of Acres at 31st December, 1925.								
	Canes.	Rice.	Coconuts.	Cacao.	Coffee.	Rubber.	Limes.	Ground Provisions.	Total.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
County of Berbice ...	20,289	14,926	8,442	30	33	280	470	2,522	46,991
County of Demerara ...	34,384	6,634	14,300	1,630	3,056	1,450	80	5,064	66,578
County of Essequibo ...	2,827	7,773	7,237	258	3,155	470	125	4,129	25,974
Total in Acres ...	57,500	29,333	29,979	1,918	6,243	2,200	655	11,715	139,543

39. In Table XXVII. are given the returns of the acres under various products during the years 1905, 1910, 1915, 1920, 1921, 1922, 1923, 1924 and 1925. This consolidated form probably gives a closer insight into the extension or contraction of the cultivation of varied kinds of agricultural products than did the more elaborate ones published in the earlier reports.

TABLE XXVII.

ACREAGE UNDER CULTIVATION WITH VARIOUS PRODUCTS, 1905 TO 1925.

Counties.	Year.	Nature of Crops and Number of Acres in each of the Years 1905, 1910, 1915, 1920, 1921, 1922, 1923, 1924 and 1925.								
		Sugar.	Rice.	Coconuts	Cacao.	Coffee.	Rubber.	Limes.	Maize, Plantains, &c. and Ground Provisions.	Total area under cultivation.
Berbice ...	1905	18,251	13,721	4,104	2	87	...	...	6,768	42,933
	1910	19,295	12,948	5,009	99	51	30	149	5,932	43,587
	1915	22,102	29,518	7,081	64	40	603	439	5,430	65,275
	1920	19,464	32,401	5,823	86	24	481	398	4,515	63,192
	1921	19,210	23,283	7,002	49	18	545	401	6,112	56,620
	1922	21,073	13,933	5,084	54	11	572	497	4,000	46,024
	1923	19,350	16,460	4,920	161	22	503	324	2,500	44,240
	1924	19,030	15,797	3,648	30	11	40	411	3,311	42,278
1925	20,289	14,926	8,442	30	32	280	470	2,522	46,991	
Demerara ...	1905	49,956	5,437	1,647	1,754	224	...	...	10,437	69,455
	1910	43,388	7,429	2,431	1,555	1,941	579	...	9,307	63,630
	1915	47,427	10,400	5,597	1,856	2,620	2,229	61	10,543	80,733
	1920	43,248	14,026	10,738	1,455	2,579	1,246	73	7,004	80,369
	1921	40,378	26,097	12,288	885	2,455	1,196	310	5,791	89,300
	1922	36,868	22,750	11,460	1,080	1,830	650	47	4,980	79,665
	1923	33,080	10,824	10,180	1,497	1,678	561	80	5,290	63,190
	1924	35,155	6,335	14,300	1,630	3,056	1,039	84	6,613	63,212
1925	34,384	6,634	14,300	1,630	3,056	1,450	60	5,604	66,578	
Essequibo ...	1905	6,395	4,948	789	227	621	...	...	2,276	15,256
	1910	7,634	8,355	2,123	264	451	311	413	2,230	21,781
	1915	6,933	10,172	5,178	276	1,258	1,233	473	2,266	27,789
	1920	6,818	8,819	7,801	268	1,499	457	525	3,904	30,091
	1921	3,832	6,531	7,031	242	2,557	1,072	491	4,474	26,236
	1922	2,820	12,390	10,059	237	2,400	1,111	116	3,950	33,083
	1923	2,700	7,681	7,870	245	2,396	1,016	396	4,134	26,438
	1924	3,005	7,274	7,253	258	2,698	576	316	4,520	25,800
1925	2,827	7,773	7,237	258	3,155	470	125	4,129	25,974	

40. The following are the annual summaries of the total acreages under cultivation during the years 1903, 1908, 1913, 1918, 1919, 1920, 1921, 1922, 1923, 1924 and 1925:—

TABLE XXVIII.

ACREAGE UNDER CULTIVATION WITH VARIOUS PRODUCTS.

		Annual Summaries of the Acreages under cultivation during the years 1903, 1908, 1913, 1918, 1919, 1920, 1921, 1922, 1923, 1924 and 1925.									
		Year.	Sugar Cane.	Rice.	Coconuts.	Cacao.	Coffee.	Rubber.	Limes.	Maize, Plantains, etc. and Ground Provisions.	Total area under cultivation.
British Guiana	...	1903	78,860	17,500	3,950	1,530	1,390	...	...	15,748	118,978
do.	...	1908	74,870	29,746	8,730	2,290	1,502	583	...	20,184	137,905
do.	...	1913	72,685	33,889	14,177	1,863	3,166	4,018	941	17,560	148,319
do.	...	1918	73,566	60,432	25,882	1,997	5,158	3,981	1,351	21,959	194,325
do.	...	1919	70,876	61,400	25,882	2,147	5,125	4,042	1,335	18,192	188,999
do.	...	1920	69,532	55,246	24,453	1,846	5,052	2,813	1,058	16,583	176,863
do.	...	1921	63,420	55,911	26,321	1,176	5,030	2,813	1,102	16,378	172,151
do.	...	1922	60,751	49,073	26,603	1,371	4,241	2,333	660	12,930	157,772
do.	...	1923	57,814	34,965*	22,970	1,903	4,096	2,080	800	11,924	136,552
do.	...	1924	57,190	29,406	25,201	1,918	5,765	1,655	711	14,444	136,290
do.	...	1925	57,500	29,833	29,979	1,918	6,243	2,200	655	11,725	139,542

* Rice reaped—Total Spring and Autumn crops ...38,715 acres.

41. In connection with the foregoing returns of area under various cultivations the following Tables show the average annual acreage and average annual exports of products during successive quinquennial periods and in 1923, 1924 and 1925:—

TABLE XXIX.

SUGAR-CANE AND SUGAR.

PERIODS.	SUGAR-CANE.		SUGAR.	
	No. of Acres (British) under cultivation.		Tons of Sugar exported.	
1859-1863	No Records		59,000	
1864-1868	..		73,330	
1869-1873	..		81,700	
1874-1878	..		99,940	
1879-1883	81,270		103,860	
1884-1888	80,890		113,820	
1889-1893	79,830		110,900	
1894-1898	80,640		101,620	
1899-1903	74,170		106,260	
1904-1908	75,580		110,830	
1909-1913	72,640		94,820	
1914-1918	76,672		106,980	
1919-1922	65,020		89,782	
1923	57,814		83,166	
1924	57,190		85,896	
1925	57,500		97,728	

TABLE XXX.

COCONUTS, COPRA AND COCONUT OIL.

PERIODS.	No. of Acres (British) under cultivation.	No. exported to nearest hundred.	Copra, lbs.	Coconut Oil, gallons.
1859-1863	No records	488,700	...	...
1864-1868	..	588,300	...	...
1869-1873	..	659,200	...	...
1874-1878	..	1,211,200	...	...
1879-1883	..	866,300	...	...
1884-1888	..	317,400	...	...
1889-1893	..	133,000	...	...
1894-1898	..	4,400	...	...
1899-1903	..	34,800	...	...
1904-1908	7,040	314,400	...	...
1909-1913	12,460	1,034,200	113,400	7,500
1914-1918	21,014	1,807,500	214,360	23,060
1919-1922	25,573	2,970,000	289,300	20,230
1923	22,970	2,659,000	941,000	26,621
1924	25,201	1,569,800	1,848,896	21,804
1925	29,979	1,363,280	1,935,110	30,394

TABLE XXXI.

CACAO.

PERIODS.	No. of Acres (British) under cultivation.	Cacao exported lbs.	Raw Cacao and prepared Cacao imported lbs.
1884-1888	No records	5,000	102,200
1889-1893	"	16,000	116,000
1894-1898	"	84,600	28,000
1899-1903	"	96,900	10,470
1904-1908	1,940	73,100	20,590
1909-1913	2,140	54,500	20,970
1914-1918	2,114	34,670	54,020
1919	2,147	9,520	102,580 (1)
1920-1922	2,020	(1920) 24,192	(1920) 179,120 (2)
1923	1,903	none	189,063 (3)
1924	1,918	"	188,373 (4)
1925	1,918	"	218,208 (5)

(1) Including 29,336 of raw cacao.

(2) " 75,950 " "

(3) " 23,696 " "

(4) " 27,940 " "

(5) " 5,345 " "

TABLE XXXII.

COFFEE.

PERIODS.	No. of Acres (British) under cultivation.	Coffee exported lbs.	Coffee, raw and prepared, imported lbs.
1884-1888	No records	1,640	219,000
1889-1893	"	7,039	250,000
1894-1898	"	5,600	262,700
1899-1903	"	5,580	284,160
1904-1908	1,370	17,900	181,370
1909-1913	2,660	115,200	83,200
1914-1918	4,713	342,190	39,160
1919	5,125	936,540	2,380 (1)
1920	5,032	407,900	7,930 (2)
1921	5,030	405,104	295 (3)
1922	4,240	808,640	1,779 (4)
1923	3,916	535,136	5,248 (5)
1924	5,765	513,072	14,917 (6)
1925	6,243	668,090	1,724 (7)

(1) Including 1,020 lbs. raw coffee.

(2) " 5,750 lbs. " "

(3) " 24 lbs. " "

(4) " 1,439 lbs. " "

(5) All raw coffee.

(6) Including 14,620 lbs. raw coffee.

(7) " 1,073 " " "

LIVE STOCK.

42. The returns of the Agricultural Census give the number of cattle in the Colony as 134,629. Of these 75,629 were on the coastlands and 59,000 in the hinterland.

The distribution of live-stock according to the Agricultural Census Returns* in the Colony is shown in the following Table:—

TABLE XXXIII.

County or District.	1925.							
	Horses.	Mules.	Donkeys.	Cattle.	Buffaloes.	Goats.	Sheep.	Swine.
Demerara	363	1,603	2,160	76,249	83	2,524	4,325	3,755
Essequibo	59	122	900	8,823	196	1,515	1,761	1,755
Berbice	365	520	4,601	50,553	3	9,511	18,083	9,700
Hinterland	1,000	...	12	59,000	...	...	230	350
Totals	1,776	2,245	7,673	134,629	282	13,650	24,399	15,560

43. The following Table shows the increases and the decreases in the various kinds of live-stock reported as on the frontlands of the Colony since 1914 :—

TABLE XXXIV.

	1914.	1916.	1918.	1920.	1922.	1923.	1924.	1925.
Horses	1,010	1,016	1,002	941	1,050	800	796	776
Mules	2,000	2,390	2,369	2,106	1,730	1,790	2,300	2,245
Donkeys	6,000	6,466	5,332	7,106	6,160	6,440	6,168	7,661
Cattle	79,500	93,264	77,108	86,938	74,360	66,670	54,315	75,629
Buffaloes	100	382	176	174	180	264	169	282
Goats	14,800	14,766	11,236	11,250	8,310	7,940	9,792	13,650
Sheep	19,700	22,805	20,611	23,202	16,770	15,130	15,985	24,769
Swine	11,600	12,450	12,532	17,401	12,500	11,134	12,589	15,210

As has been the case for several years the live-stock of the Colony was practically free from infectious diseases during 1925.

44. The number of imported male live-stock belonging to the Board of Agriculture on the 1st January and the 31st December, 1925, were :—

TABLE XXXV.

	BULLS.			RAMS.	Donkeys.	Horses.
	Shorthorn.	Guernsey.	Holstein.	Southdown.		
On hand 1st January, 1925	2	1	1	1	3	1
Imported 1925	...	...	...	3	1	...
Died during 1925	...	...	...	1	...	...
On hand 31st December, 1925	2	1	1	3	4	1

45. The following shows the places where the Board's stallion "Waterbass" was stationed, and the number of services performed by him during the year; he also served 9 mares belonging to the Police Department :—

TABLE XXXVI.

Where Stationed.	From	To	No. of services other than to Stud Farm Mares.
Belfield, E.C. Demerara	1st January, 1925	31st July, 1925	12
Botanic Gardens, Georgetown	31st July 1925	31st December, 1925	20

46. The following shows the places where the Board's stallion Donkeys were stationed and the number of services performed by them during the year :—

TABLE XXXVII.

Name of Donkey.	Where Stationed.	From	To	No. of Services.
Tip Top	Botanic Gardens	1st January, 1925	3rd March, 1925	...
"	Bramfield, Berbice	3rd March, 1925	31st December, 1925	20
Jack Greatland	Botanic Gardens	1st January, 1925	31st December, 1925	19
Red Cloud	Botanic Gardens	1st January, 1925	6th March, 1925	...
"	Onderneeming	6th March, 1925	31st December, 1925	15
Clay King	Botanic Gardens	19th May, 1925	14th August, 1925	1
"	Pln. Hope, E.C. Dem.	14th August, 1925	29th September, 1925	11
"	Botanic Gardens	29th September, 1925	31st December, 1925	4

47. *Bulls.*—During the year the bulls were stationed as under :—

Guernsey "Roosevelt II," Botanic Gardens.

Shorthorn "Duke," Onderneeming.

Shorthorn "Francis," H.M. Penal Settlement.

Holstein "Texas Wonder," Botanic Gardens.

The fees earned by these amounted to \$33.60. Many services were given free to Government cows.

BIOLOGICAL.

48. The Economic Biologist's annual report shows that the principal lines of work undertaken during the period were as follows :—

(1) Investigations in connection with the stem borer of coconut palms, *Castnia daedalus*. Cramer.

(2) Loss caused through attacks of small moth borer. *Diatraea* spp., on sugar cane.

(3) The collection of insects was maintained and the revision of the card index of specimens was completed.

While on leave the Economic Biologist attended the Second Imperial Entomological Conference held in London in June. A report by him on the Conference has been published as a Sessional Paper for the Combined Court.

BOARD OF AGRICULTURE.

49. The following were some of the more important matters dealt with by the Board :—

Appointments.—Dr. C. L. Whittles, Superintendent of the British Guiana Sugar Planters' Experiment Station, took his seat in place of Mr. Jas. Crabtree, resigned. The Hon. J. J. DaSilva was appointed an ordinary member of the Board.

Deaths.—During the year the Board suffered the loss by two of its Honorary Members, Sir. J. M. Hodgson and Mr. B. Gainfort, both of whom had done excellent work on the Board and its Committees.

Licences to Kill Wild Birds.—A licence to kill wild birds was granted to Mr. J. C. Menzies. Permission was granted to Mr. A. R. F. Webber to export two live Curri-Curri (*Endocimus rubra*).

50. *Agricultural Shows.*—The acting Director of Science and Agriculture, as acting Chairman of the Board of Agriculture, has at the time of writing this report the following balances with accrued interest in the Post Office Savings Bank in trust for the purpose of County Agricultural Exhibitions :—

County.	Capital.	Interest.	Total.
Demerara ...	\$ 277 09	\$ 8 28	\$ 285 37
Berbice ...	305 57	9 12	314 69

Shows were held during the year by :—

(a) The Victoria-Belfield Agricultural Society on the 6th of October.

(b) The No. 1 Canal Farming Association on the 27th of October.

(c) The Mahaicony Farming Association on the 25th of November.

(d) A farmers' competition was held on the East Coast, Demerara, under the auspices of the Victoria-Belfield Agricultural Society but was not a marked success; the judges criticising very strongly the condition of the plots and the lack of interest displayed.

The following Agricultural Associations were affiliated to the Board for the year 1925 :—

British Guiana Farmers' Conference.
 Mahaicony Farmers' Association.
 No. 1 Canal Farmers' Association.
 No. 2 Canal Farmers' Association.
 Victoria-Belfield Agricultural Society.
 County of Essequibo Agricultural Association.
 Beterverwagting and Triumph Farmers' Association.
 Buxton and Friendship Farming Association.
 Plaisance and Sparendam Farming Association.

Importation of Stock.—During the year the Board imported :—

Three Blackface Shropshire rams.
 One Stallion Donkey.

51. *The Journal of the Board.*—Four issues of the Journal appeared during the year—Volume XVIII. Nos. 1, 2, 3 and 4. The circulation of these numbers was :—

		Local.	Foreign.	Total.
January, 1925	...	774	192	966
April, 1925	...	762	192	956
July, 1925	...	758	195	953
October, 1925	...	805	196	1,001

The cost of publication of these four issues was \$739.41.

AGRICULTURAL APPRENTICES.

52. On January 1st, 1925, there were two journeymen, seven apprentices and three probationers.

One journeyman resigned on January 21st, is unemployed and resides at Buxton, E.C.

One apprentice was dismissed in May by His Excellency the Governor for persistent misconduct.

One probationer was dismissed in September for fighting.

Five probationers were admitted during the year.

One apprentice completed his indenture and became a journeyman on February 8th, he is at the Experimental Fields, Botanic Gardens.

One Probationer resigned on December 2nd.

Two probationers were indentured during the year.

Certificates of competency were handed to the following five apprentices by His Excellency the Governor at the meeting of the Board of Agriculture held in the Court of Policy Hall during the year referred to. Of these, four were issued to lads who had completed their indenture towards the end of the year 1924 :—

Edward Reginald Collins.
 Gustavus Adolphus Europe.
 George Lionel Leitch.
 William Albert Sears.
 George Emanuel Fraser.

The number of lads in training at the Botanic Garden and Experimental Fields on the 31st December, 1925, was thirteen—two journeymen, seven apprentices, and four probationers.

The total expenditure on the apprenticeship scheme during the year amounted to \$2,893.56 as compared with \$3,299.11 in the previous year. Of the expenditure in 1925, \$1,480 and \$734.91 were recouped respectively as the value of the labour of the lads and as payment from them for their dietaries, thus reducing the cost of the scheme to \$678.65.

The work done by the apprentices showed signs of general improvement, and the duties that they were called upon to perform were carried out satisfactorily.

DISTRICT GARDENS.

53. The following seven Gardens have been in operation since 1915 ; the attendances in 1921, 1922, 1923, 1924 and 1925 being :—

TABLE XXXVIII.

	1921.	1922.	1923.	1924.	1925.
Bourda, Georgetown ...	5,671	3,557	4,038	4,123	3,317
Houston, East Bank, Demerara ...	2,539	1,518	2,137	2,146	1,663
Belfield, East Coast, Demerara ...	1,968	1,841	2,780	2,827	2,755
Den Amstel, West Coast, Demerara ...	2,049	1,525	1,958	1,878	470
Stanleytown, New Amsterdam, Berbice...	1,642	1,510	1,595	1,103	1,820
Wakenaam, Essequibo ...	1,610	1,397	1,951	1,664	1,580
Suddie, Essequibo ...	2,629	1,598	1,934	1,789	1,597
Total attendances ...	18,108	12,944	16,393	15,330	13,202

The numbers of attendances were not satisfactory although the District Gardens have greatly improved and good work is being done in them.

The costs of the maintenance of the Garden during 1925 were \$1,506.59 as compared with \$1,555.94 in 1924.

DISTRICT AGRICULTURAL INSTRUCTORS.

54. The following are part time District Agricultural Instructors :—

- Mr. J. M. Antrobus—West Bank, Demerara River, and Canal Polder District.
- Mr. C. Humphrys—East Bank, Demerara River District.
- Mr. J. E. Wilson—Essequibo Islands District.
- Mr. R. R. Pasea—Essequibo Coast District.
- Mr. D. D. Haynes—Mahaica-Mahaicony District.
- Mr. J. M. Cush—Berbice River District.
- Mr. R. R. Ross—West Coast Berbice District.
- Mr. T. A. Archer—Parika and Leguan District.
- Mr. D. W. Fingal—Corentyne District.

The vote for District Agricultural Instructors for 1925 was \$6,636. The instructional work carried out by these officers will be of greater value when the new Travelling Agricultural Inspector takes over his duties.

THE GOVERNMENT CHEMICAL LABORATORY.

55. The work carried out in the Chemical Laboratory during the period under review has been of a most valuable nature. Twelve thousand two hundred and sixty-one samples were received at the Government Laboratory and Sophia Experiment Station for examination. In the previous year six thousand five hundred and fifty-five samples were received. The increase is due mostly to the large number of Sugar Canes analysed at Sophia Experiment Station by the Superintendent, Dr. Whittles, and the staff, assisted by the Agricultural Apprentices.

The reports published under the Food and Drugs Ordinance show that three thousand six hundred and fifty-nine samples of food and drink other than spirituous liquors submitted for examination for non-fiscal purposes were examined. Of these two hundred and fifty-six were returned as adulterated, this being at the rate of 7.0 per cent. as compared with 8.3 per cent in the previous year.

The fines inflicted by the Magistrates for breaches of the Ordinance amounted to three thousand eight hundred and seventy-six dollars and seventy-seven cents. The greater number of convictions were for the sale of adulterated milk. The fines for adulterated samples taken on Sundays, Public Holidays, and after official hours, amounted to one thousand six hundred and eighteen dollars and ninety-three cents.

Twenty-five manufactories of Aerated Waters were at work in the Colony during 1925. These are well equipped, and the products regularly analysed as to their purity. I have noticed a great improvement in the sanitary state of these factories, and in the purity of the various drinks made.

Valuable work was also carried out in the research laboratory.

GEOLOGICAL AND MINERALOGICAL BRANCH.

56. A review of the work done by this Division of the Department will be issued by the Government Economic Geologist and Mineralogist as a special report to which much interest is attached, and it will have an important bearing on the geology of the interior.

BOTANIC GARDENS.

57. The Botanic Gardens received careful attention during the year under review. The report of the Superintendent shows that the pest *Antedesma venosum* referred to in the previous report continues to give trouble. A vigorous attempt has been made to eradicate this most troublesome pest with fairly satisfactory results.

The demand for coffee plants was greater than in previous years, especially for those of the Liberian variety.

The various minor gardens in Georgetown were well looked after.

The usual care and attention was given to the New Amsterdam Garden, which was kept in excellent order during the year.

The Municipal Gardens were maintained in excellent order by the skilled horticulturists of this Department.

The revenue from sales of economic plants at the Botanic Gardens including the receipts for the sale of 42,649 lbs. of colony grown seed padi, and 1,075 eggs of Leghorn fowls, was \$678.70. The receipts for ornamental plants, flowers, etc., amounted to \$299.08.

W. FRANCIS,
Acting Director.

The Honourable
THE COLONIAL SECRETARY.

**REPORTS OF THE DEPARTMENT OF SCIENCE AND AGRICULTURE
FOR THE YEAR ENDED 31st DECEMBER, 1925.**

APPENDIX I.

REPORT OF THE GOVERNMENT ANALYST.

APPENDIX I.

REPORT OF THE GOVERNMENT ANALYST FOR THE YEAR ENDED
31st DECEMBER, 1925.

SIR,

I have the honour to report that during the year under review twelve thousand two hundred and sixty-one samples were received at the Government Laboratory and Sophia Experiment Station for examination. In the preceding year six thousand five hundred and fifty-five samples were received. The increase is due mostly to the large number of Sugar Cases analysed at Sophia Experiment Station by the Superintendent, Dr. C. L. Whittles, and his staff, assisted by the Agricultural apprentices.

2. Twelve thousand one hundred and fifty of the samples were sent officially by various Departments and Authorities and were received from the following:—

1. The Comptroller of Customs	...	...	1,751
2. The Inspector General of Police...	...	...	2,187
3. The Chief Commissary	...	...	407
4. The Government Medical Officer of Health	...	...	636
5. The Municipal Medical Officer of Health	...	...	621
6. The Managing Director, Colonial Transport Department	...	...	9
7. The Medical Officer—Infant Welfare and Maternity Clinic	...	...	3
8. The Director, Science and Agriculture	...	...	111
9. The Director, Public Works Department	...	...	16
10. The Surgeon General	...	...	6
11. The Board of Agriculture	...	...	6,403
Total			12,150

3. The number of private samples analysed was one hundred and eleven.

4. The following is an abstract of the numbers of official samples submitted to the Government Laboratory since its re-establishment in 1879:—

1880	...	...	...	70
1890	...	...	...	900
1900	...	...	...	3,486
1910	...	...	...	4,464
1920	...	...	...	3,878
1921	...	...	...	4,385
1922	...	...	...	5,066
1923	...	...	...	6,457
1924	...	...	...	6,446
1925	...	...	...	12,150

5. The samples received during 1925 may be classified as under:—

1. Viscera (including suspected poisoning)	...	...	4
2. Food and Drink (sent for fiscal purposes)	...	...	244
3. Food and Drink (sent for non-fiscal purposes)	...	...	3,408
4. Petroleum, Petrol, etc.	...	...	146
5. Drugs, Oils, Varnishes, etc.	...	...	120
6. Tobacco (fiscal)	...	...	465
7. Sugar and Molasses...	...	...	12
8. Manures	...	...	2
9. Soils	...	...	4
10. Waters	...	...	32

11. Aerated Drinks (including materials for making same)	...	34
12. Hydrometers, Polariscopes and Thermometers	...	189
13. Wines and Liqueurs	...	672
14. Spirits (Customs Department)	...	49
15. Coloured Rum Colouring matter, Sediment (Excise Department)	...	168
16. Illicitly Distilled Spirits	...	4
17. Bitters and Cordials	...	11
18. Methylated Spirits and materials for making same...	...	81
19. Rocks and Minerals including Bauxite	...	94
20. Assay of ores for gold	...	4
21. Sugar Canes (Sophia Experiment Station)	...	6,403
22. Bay Rum including denaturants for	...	50
23. Tinctures (Excise Department)	...	57
24. Miscellaneous	...	8
Total	...	12,261

6. *Substances including Viscera suspected to contain Poison.*—Four cases of alleged poisoning entailing the examination of fourteen exhibits were reported during the year under review.

The following Table illustrates the position regarding such work during the years 1911-1925 :—

YEAR.	NUMBERS.				POISONS DETECTED.														
	Cases investigated.	Deaths.	Exhibits submitted.	Cases in which poisons were found.	Tartar Emetic.	Ground glass.	Strychnine.	Arsenic.	Datura (Atropine).	Potassium Cyanide.	Corrosive Sublimate.	Opium.	Carbolic acid.	Sulphuric acid.	Nicotine.	Morphia.	Mercuric Iodide.	Mercury (in fine state of division).	
1911...	4	0	6	3	1	...	1	1	...	...	...	...	...	...	...	...	...	...	...
1912...	5	1	10	1	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...
1913...	5	3	9	4	1	...	1	...	...	1	1	...	...	...	...	...	...	...	...
1914...	5	2	34	4	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
1915...	6	2	13	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
1916...	6	2	7	1	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...
1917...	6	2	7	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
1918...	3	2	5	2	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...
1919...	3	2	3	2	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...
1920...	6	1	9	2	...	...	...	...	...	1	1	...	...	...	...	1	...	...	...
1921...	11	3	31	7	...	1	1	...	...	1	...	...	1	1	...	...	1	...	...
1922...	8	1	15	6	...	1	...	...	1	...	2	...	1	1	...	...	...	...	...
1923...	4	2	12	3	...	1	...	...	...	1	...	...	1	1	...	...	...	...	1
1924...	2	1	7	3	...	...	...	...	1	...	2	...	...	...	...	...	...	...	...
1925...	4	2	14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	76	25	184	40	2	2	4	2	4	3	9	5	3	2	1	1	1	1	1

7. *Articles of Food and Drink.*—Three thousand six hundred and fifty-nine samples of food and drink other than spirituous liquors submitted for examination for non-fiscal purposes were examined under the Sale of Food and Drugs Ordinance. Of these two hundred and fifty-six were returned as adulterated, this being at the rate of 7.0 per cent. as compared with 8.3 per cent. in the previous year. There has been a decrease in the rate of adulteration of milk as shown by the following Table :—

Year.	Samples submitted.	Per cent. returned as adulterated.		
		All Samples.	Milk Samples.	Samples other than Milk.
1894	308	54.5	42.1	60.8
1904	904	24.5	26.0	7.5
1914	1,189	18.4	12.8	16.5
1915 (9 months)	1,320	17.7	18.2	16.0
1916	1,917	16.9	18.2	13.5
1917	1,727	14.8	15.4	8.0
1918	1,818	14.6	15.4	6.2
1919	1,792	11.8	12.1	9.5
1920	1,893	18.1	19.7	8.1
1921	2,965	8.7	9.6	8.0
1922	3,964	8.4	8.6	5.2
1923	4,101	7.0	7.4	3.2
1924	3,680	8.3	8.8	3.4
1925	3,659	7.0	7.3	3.6

The articles examined during the year under review were as follows:—

Nature of Foodstuff examined.	No. examined.	Returned as adulterated.	
		Number.	Per cent.
Milk	3,304	243	7.3
Butter	36	5	5.2
Ghi and Phalkaghi...	65	4	6.1
Vinegar	82	3	3.6
Coffee	46	—	—
Olive Oil	19	1	5.2
Mauby	29	—	—
Ginger Beer	10	—	—
Lemonade	8	—	—
Totals	3,659	256	7.0

The above Table shows that the rates of freedom from adulteration found amongst the samples received including milk, were satisfactory.

During the period under review the fines inflicted by the Magistrates for breaches of the Ordinance amounted to three thousand eight hundred and seventy-six dollars and seventy-seven cents. As in previous years the greater number of convictions were for the sale of adulterated milk, and the fact that the vendors of such milk pay the heavy fines inflicted and continue in their occupation shows the very profitable nature of their fraud, a fraud fraught with danger to consumers of milk, especially infants and sick persons. It is evident that only by the constant and stringent administration of the Sale of Food and Drugs Ordinance can the sale of adulterated milk be kept under satisfactory control. The profitable nature of the frauds of removing butter fat from the milk and by adding water to it is shown by the fact that during the year under report the vendors of sophisticated milk were able to pay three thousand eight hundred and twenty-one dollars and twenty-five cents. The fines for adulterated samples taken on Sundays, Public Holidays and after official hours amounted to one thousand six hundred and eighteen dollars and ninety-three cents.

8. Eighty-three samples of petroleum for illuminating purposes were analysed under the Petroleum and Inflammable Liquids Ordinance, 1916, for the Comptroller of Customs, and were all found to be above the legal standard (Abel Pensky 85 degrees Fah.).

9. *Medicinal Tinctures.*—Fifty-seven samples were submitted for analysis by the Excise Department to determine the percentage of alcohol present and their correspondence to the limits of the British Pharmacopia.

10. *Aerated Waters.*—Thirty-four samples of aerated waters and mauby were examined under this Ordinance. There has been a great improvement in the quality of the locally made aerated waters due to the conditions prescribed by the Gover-

nor-in-Council as to the working and otherwise of manufactories of aerated or artificial mineral waters. These conditions are cited as the Aerated Waters Manufactory Conditions, 1923, and are under section 12 (1) of the Sale of Food and Drugs (Consolidation) Ordinance, 1918. All the aerated water factories now have efficient means of filtering the water used in the preparation of the various drinks.

11. During the period under review a number of important investigations were carried out in the research laboratory by the late Director. Further determinations of the properties of the mineral palladium amalgam—palladium mercuride—were made. This mineral which is new to science was reported on in the *Official Gazette* of May 2nd, 1924. A further memorandum dealing with its properties was published in the *Official Gazette* of February 27th, 1925. Sundry analyses were made of minerals for the information of the Geological Surveyor and others. Also experiments were continued with regard to the purification of bush water on a large scale, analyses of the water before and after purification being carried out.

12. *The Receipts of the Laboratory.*—During the period under review the receipts of the Laboratory from the fees paid into the Treasury by private persons and firms for examinations made for them, amounted to two hundred and seventy-four dollars and thirty-five cents. The Treasury also received three thousand eight hundred and seventy-six dollars and seventy-seven cents as fines inflicted under the Sale of Food and Drugs Ordinance, the total receipts due to the work of the Laboratory thus amounting to four thousand one hundred and fifty-one dollars and twelve cents.

I have the honour to be,

Sir,

Your obedient Servant,

W. FRANCIS,
Acting Government Analyst.

THE ACTING DIRECTOR
OF SCIENCE AND AGRICULTURE.

**REPORTS OF THE DEPARTMENT OF SCIENCE AND AGRICULTURE
FOR THE YEAR ENDED 31ST DECEMBER, 1925.**

APPENDIX II.

REPORT ON THE BOTANIC GARDENS AND THEIR WORK.

APPENDIX II.

BOTANIC GARDENS,

GEORGETOWN, DEMERARA,

9th March, 1926.

SIR,

I have the honour to submit the following report on the working of the Botanic Gardens in Georgetown, and the Public Gardens in New Amsterdam, Berbice, for the year ended 31st December, 1925.

BOTANIC GARDENS, GEORGETOWN.

Ornamental Section.

2. The average number of regular labourers employed was 40, practically the same as in 1924. This does, not, however, include extra hands which had to be taken on for special work that had to be carried out from time to time, as these were only employed temporarily. The amounts expended under the voted sub-heads for the year were :—

Botanic Gardens Maintenance	\$4,799 10
Irrigation and Drainage	497 72
Purchase, production and distribution of seeds and plants	2,293 55
Carts, Harness, Tools and Implements	503 75

3. Two consignments of seeds were received during the year, comprising both vegetable and flower. These were distributed to the various gardens including the District Agricultural School Gardens.

4. During the year one plant *Congea tomentosa*, a strong growing creeper, was received from Surinam. It has been planted in one of the nursery beds and is doing well.

5. The following is a list of trees which flowered during the year under review and the months of their flowering :—

Carapa guianensis, *Leptospermum pubescens*, *Lagerstrœmia macrocarpa*, (January). *Brownea rosea*, *Cesalpinia paucijuga*, *Cassia siamea*, *Swietenia macrophylla*, *Sterculia foetida*, (February). *Lagerstrœmia Flos-reginæ*, *Andira inermis*, *Peltophorum ferrugineum*, *Triplaris surinamensis*, *Eugenia magnifica*, *Bombax Ceiba* (March). *Poinciana regia*, *Platymiscium platystachyum*, *Clusia insignis*, *Cassia javanica*, *Spathodea campanulata* (April). *Tecoma spectabilis*, *Jacaranda ovalifolia*, *Pterocarpus indicus*, *Erythrina Corallodendron* (May). *Brownea grandiceps*, *Cassia calliantha*, *C. javanica*, *Cananga odorata* (June). *Lonchocarpus latifolius*, *Triplaris surinamensis*, *Acacia Smithiana*, *Carapa guianensis* (July). *Kigelia pinnata*, *Dillenia speciosa*, *Albizzia Lebbek* (August). *Andira inermis* (September). *Jacaranda ovalifolia*, *Erythrina glauca*, *Melaleuca Leucadendron* (October). *Tecoma spectabilis*, *Gliricidia maculata*, *Eucalyptus alba*, *Lagerstrœmia Flos-reginæ* (November). *Mimusops globosa*, *Barringtonia racemosa*, *Poinciana regia*, *Pithecolobium Saman* (December).

6. The following are the palms which flowered during the year :—

Attalea spectabilis, *Archontophœnix Alexandræ*, *Acanthorhiza aculeata*, *Borassus flabelliformis*, *Bactris Plumeriana*, *Bentinckia nicobarica*, *Ohrysalidocarpus lutescens*, *Cocos schizophylla*, *Cocos flexuosa*, *Caryota mitis*, *Copernicia cerifera*, *Corypha umbra-culifera*, *Dictyosperma album*, *Euterpe edulis*, *Hyophorbe Verschaffelti*, *H. amaricanulis*, *Heterospathe elata*, *Lodoicea sechellarum*, *Livistona chinensis*, *L. Hoogendorpii*, *Licuala peltata*, *L. Rumphii*, *Mauritia flexuosa*, *Nephrosperma van-Houtteana*, *Pinanga Kuhlii*, *Phœnix humilis*, *Phœnix rupicola*, *Phœnix paludosa*, *Ptychosperma Macart-hurii*, *Sabal mauritiiforme*, *Sabal mexicanum*, *Thrinax radiata*, *T. argentea*, *T. parvi-flora*.

7. The following palms suffered during the dry period of the year :—

Cyrtostachys Renda, *Heterospatha elata*, *Euterpe edulis*, *Licuala grandis*, *Pinanga Kuhlii*, *Thrinax radiata*, *Chrysalidocarpus lutescens*.

8. The following palms died during the year :—

Acanthoriza aculeata, *Thrinax argentea*, *Pinanga Kuhlii*, *Cyrtostachys Renda*, *Nephrosperma van-Houtteana*, *Cocos amara*, *Phoenix paludosa*, *Bentinckia nicobarica*, *Dictyosperma album*, *Washingtonia filifera*, *Euterpe edulis*.

Two young seedlings of the "Double Coconut" palms *Lodoicea sechellarum*, were planted out during the year. One on the centre bed and the other on the western bed on No. 1 Island. These require shelter from strong winds in their young stage, for if exposed, their growth is considerably retarded.

9. *Orchids*.—These have not made such a good display during this year. A number of these were re-basketed. There still remains a further number to be done. These will be attended to during 1926. The following list shows the most striking ones that flowered :—

Aerides crispum, *Batemannia Colleyii*, *Brassavola Martiana*, *Brassia Lawrenceana*, *B. caudata*, *Catasetum tridentatum*, *Cattleya Trianxi*, *C. lobiata*, *C. Mossii*, *C. speciosissima*, *C. Jenmanii*, *C. imperialis*, *C. Gaskelliana*, *C. Skinnerii*, *Dendrobium superbum*, *D. Parishii*, *D. aggregatum*, *D. veratrifolium*, *D. moschatum*, *Epidendrum fragrans*, *E. ciliare*, *Gongora atropurpurea*, *Oncidium altissimum*, *O. Lanceanum*, *Phalænopsis amabilis*, *P. Esmeralda*, *P. Aphrodite*, *P. Stuartiana*, *Renanthera coccinea*, *Sobralia sessilis*, *Stanhopea eburnea*, *Saccolabium violaceum*, *Vanda teres*, *Cymbidium pendulum*.

10. *Climbing Plants*.—The most striking of these that flowered were the Bougainvillaeas and *Banisteria ciliata*, *Thunbergia grandiflora* var. *alba*, *Combretum*, *Jacquemontia*, *Porana volubilis*, *Antigonon insigne*.

11. *Herbaceous Plants*.—The primrose *Asystasia coromandeliana*, Heliconias and Crisums, made a very fair display throughout the year along the main avenue and serpentine drive.

12. *Aquatic Plants*.—No new additions were made to these during the year. The lakes and trenches were cleared at intervals. Further attempts were made to establish the *Victoria regia* in Lake No. 4 but without success. The white, pink and purple Nymphaeas, the *Victoria regia* and the Nelumbiums made a good display throughout the year. The last named being in great demand for decorative purposes.

13. *Noxious Weeds*.—The *Antidesma venosum* referred to in previous reports continues to give a great deal of trouble. A vigorous attempt, however, was made to eradicate this most troublesome pest. There is a considerable quantity established outside the Gardens in other lands, especially on the lands of the Le Repentir Cemetery. Steps should be taken by the Board of Agriculture to control this dangerous pest before it reaches to the farmers' cultivation and pasture lands.

14. *Lawns and Borders*.—These were given the usual attention. The small irrigation drains had to be dug throughout the lawns in order to obtain a flow of water from the lakes and main avenue side-line trenches for irrigation purposes. The soil obtained by digging these drains was used in levelling up the lawns and some of it is being used for Nursery work. The following numbers and kinds of plants were planted out in these Gardens and other gardens in Georgetown, viz.:—Annuals 10,663; Perennials 431; Shrubs 203; Trees 19; and Palms 91.

15. *Militia Band Performances on Sundays.*—The following shows the number of visitors who visited the gardens on the Sundays when the British Guiana Militia Band performed (*i.e.*, every second Sunday in every second month):—

FEBRUARY, 1925.		
61 Motor Cars containing...	...	244 persons.
13 Carriages	" ...	52 "
Cyclists	... ..	217 "
Pedestrians	... ..	1,983 "
	Total...	<u>2,496</u>
APRIL, 1925.		
50 Motor Cars containing...	...	200 persons.
12 Carriages	" ...	36 "
Cyclists	... ..	230 "
Pedestrians	... ..	1,546 "
	Total...	<u>2,012</u>
JUNE, 1925.		
43 Motor Cars containing...	..	172 persons.
12 Carriages	" ...	36 "
Cyclists	... ..	20 "
Pedestrians	... ..	2,054 "
	Total...	<u>2,282</u>
AUGUST, 1925.		
38 Motor Cars containing...	...	152 persons.
3 Carriages	" ...	9 "
Cyclists	... ..	249 "
Pedestrians	... ..	2,527 "
	Total...	<u>2,937</u>
OCTOBER, 1925.		
38 Motor Cars containing...	...	152 persons.
14 Carriages	" ...	46 "
Cyclists	... ..	146 "
Pedestrians	... ..	1,798 "
	Total...	<u>2,142</u>
DECEMBER, 1925.		
26 Motor Cars containing...	...	104 persons.
4 Carriages	" ...	12 "
Cyclists	... ..	55 "
Pedestrians	... ..	1,037 "
	Total...	<u>1,208</u>

16. *Roads and Paths.*—The worst portions of these were repaired. No new paths or roads or alternatives to existing ones during the year were made. Two

very large heaps of earth were burnt during this period under review. The heaps are now available for road material when required.

17. *Nursery and Nursery Buildings.*—The usual routine work of propagating was carried on. There was a greater demand for economic plants, especially fruit and grafted plants, and seed-padi. The Public Works Department did minor repairs to the buildings generally.

18. *Islands.*—These continue to be a source of attraction to visitors, especially strangers to the Colony, owing to the different species of Herons which are to be seen in large quantities, especially during the breeding season.

19. *Irrigation.*—The Bull Dog Oil Engine put down by the Public Works Department 5 years ago continues to give general satisfaction.

20. *The Shelter Belt,* situated on the northern side of the Gardens by the Bel Air Race Course, was handed over last year to the Mayor and Town Council, on which they intend to erect their new water plant.

21. *Coffee.*—The demand for coffee was greater this year than last year. The number of plants sold being one thousand two hundred and seventy-seven of the Liberian variety.

Cacao.—The demand for cacao was five hundred and fifty plants less than that for last year.

Other Economic Plants.—The demand for these was two hundred and sixty-three less than that for last year.

22. The number of fruits borne by different varieties of Mango trees is shown in the following table:—

Varieties.	No. of trees.	No. of fruits.	Average No. of fruits per tree.
Ceylon No. I.	13	3,022	232
Jamaica No. II.	14	3,593	257
E. I. Seedling	2	732	366
Chinoise	5	1,042	208
Dr. Rowland	5	1,607	321
Mrs. Dare	9	1,442	160
Canal No. I.	4	1,081	270
Julie	19	1,895	100
D'Or	6	1,399	233
Mrs. White	6	1,457	243
Bombay Purple	5	739	148
Dimpled Spice	2	338	169
Colonial Bank	2	228	114
Pere Louis	2	458	229
Martin	6	460	76
Imperial	1	116	116
Divine	4	239	59
Sabot	1	87	87
Josephine	2	206	103
Gordon	2	691	345
Mrs. Francis	2	156	78
Crassons	1	87	87
Raynaud	2	73	36

23. The following table shows the work carried out in the Nursery during the year as compared with the five previous years:—

TABLE I.

	1920	1921	1922	1923	1924	1925
Kinds of seeds sown	111	9,744	16,161	56	11,334	13,555
Seedlings basketed	12,371	11,484	9,776	6,990	8,154	9,204
do. potted	346	758	2,856	1,232	956	519
Plants rebasketed	1,838	3,432	4,432	5,601	4,783	2,437
Plants repotted	419	185	1,219	1,531	1,443	904
Plants top-dressed	190			290	1,707	253
Plants divided	217	349	502	463	649	373
Plants layered	331	803	782	350	496	524
Plants grafted	242	543	148		65	
Cuttings basketed	191	59	1,016	531	182	1,052
Cuttings planted in beds	2,422	4,400	5,569	2,065	3,682	993
Plants tubbed	210	79	71	418	93	46

24. The following table gives the receipts for the Ornamental Section for the year as compared with the five previous years:—

TABLE II.

	1920	1921	1922	1923	1924	1925
Plants	2,511—\$309 68	1,257—\$177 24	1,460—\$265 76	989—\$147 77	5,981—\$309 71	1,170—\$100 15
Flowers (baskets)	808— 97 84	1,065— 127 82	1,453— 174 63	1,027— 122 24	617— 149 45	746— 93 38
Seeds (packets)			12— 48		13 42	
Grass Pases	138— 99 10	188— 96 80	76— 56 16	1— 80		
Bamboo (bundles)	57— 6 84	107— 12 92	131— 15 70	294— 35 28	313— 38 88	406— 48 34
Delivery of plants and flowers		4 00	4 92	4 36	13 21	2 50
Pots	41— 8 16	35— 10 88	78— 17 98	151— 24 61	101— 21 06	156— 23 18
Hire of Plants		13 91	3 12	14 40	20 50	12 60
Pound Fees			21 55	45 70	15 98	49 88
						24 59

25. The sales for the economic section of the Botanic Gardens for 1925 are shown in the following table:—

TABLE III.

Months.	Coffee.	Cacao.	Grafted Shaddock.	Grafted Mangoes.	Grafted Oranges.	Sweet Orange Seedlings	Other Economic.	Totals.
January	500	6	...	...	...	...	53	\$ 9 04
February	48	412	...	4	...	...	226	13 82
March	100	1	1	5	2	...	108	6 36
April	314	412	...	1	...	172	316	20 45
May	248	49	...	...	...	...	179	7 54
June	...	29	...	6	...	...	225	4 70
July	4	20	...	12	...	150	124	8 03
August	...	200	1	1	...	12	99	5 96
September	13	1	2	...	...	...	64	1 92
October	...	...	...	...	...	...	4	28
November	...	...	...	...	...	...	23	1 12
December	50	250	...	...	...	...	34	5 38
Totals	1,277	1,380	4	29	2	334	1,445	84 60

Rice Padi 42,649 lbs. ... \$ 473 36
Leghorn Fowls Eggs 1,075 ... 120 74

THE BERBICE PUBLIC GARDENS AND GROUNDS.

26. The Berbice Public Gardens have been under the care of Mr. E. M. Morgan, the Resident Agricultural Instructor. The usual care and attention were given to these. The borders, beds and lawns were well-maintained. The expenditure on these Gardens for the year was \$559.79.

27. *The Public Buildings Grounds.*—These received the usual attention throughout the year.

28. *Government House Gardens.*—These gardens continue to receive careful attention. The large Talipot Palm, *Corypha umbraculifera*, referred to in last

year's report has been cut down and cleared away. The tennis lawns have received careful attention. Three new circular beds were made at the northern end of the eastern section near the small rockery and should prove attractive.

29. *Municipal Gardens, Georgetown.*—These gardens were, as usual, under the control of Mr. Peterkin for the year under review. The paths, where they required it, were levelled and re-shelled and are now in fine order. The borders are still in the same condition, *i.e.*, require raising but as there is no soil available, except the sewerage excavations most of which is unfit for this purpose, there appears no immediate prospect of rectifying it. The lawns require levelling and top-dressing. Owing to the drought, at the end of the year, the sale of flowers, etc., was considerably reduced, the supply being inadequate to meet the demand. The expenditure was \$3,667.56, while the revenue was \$1,379.83.

I have the honour to be,

SIR,

Your obedient Servant,

R. WARD,
Superintendent, Botanic Gardens.

THE ACTING DIRECTOR,
SCIENCE AND AGRICULTURE.

**REPORTS OF THE DEPARTMENT OF SCIENCE AND AGRICULTURE
FOR THE YEAR ENDED 31st DECEMBER, 1925.**

APPENDIX III.

REPORT OF THE ASSISTANT BOTANIST AND MYCOLOGIST.

APPENDIX III.

BOTANIC GARDENS,
 GEORGETOWN, BRITISH GUIANA,
 23rd February, 1926.

SIR,

I have the honour to submit herewith my report for the year ended the 31st of December, 1925.

The amount of pathological investigation accomplished during the period under review has been extremely limited, and has mainly been confined to a continuation of my studies of root-disease in cane. This work occupied the greater part of my time during the first half of the year. Early in August I accompanied the Geological Survey on its expedition to the Upper Mazaruni District, in order to carry out a preliminary examination of the flora of that area. I was away from Georgetown for some six weeks, and on my return employed most of the remaining months working through the large amount of material which had been collected. Next year it has been arranged that I should spend about four months in the interior, extending the scope of this Botanical Survey. It is obvious that an investigation of this nature, in common with that of other surveys, does not end with the return of the expedition, but that the specimens collected up-country provide the basis for several months subsequent laboratory study. It is not possible to conduct pathological investigations and carry out this determinative work simultaneously. In the past I have endeavoured to overcome this difficulty by allocating a certain amount of time during the year to each. I regard both as of equal importance, but with the future increase in determinative work resulting from the development of the Botanical Survey, the time which can be devoted to the study of plant disease will unfortunately have to be proportionately decreased. The cause of the diseases affecting several of the more important crops in the Colony is still imperfectly known, and any slackening of the progress in pathology is much to be regretted. On this account it is suggested that consideration should be given to the appointment of a qualified Assistant Mycologist who would be able to collaborate with me in this work and continue the investigations during my absence in the interior.

PLANT DISEASE INVESTIGATIONS.

SUGAR CANE.—*Root Disease.*—Early in January a severe epidemic of root-disease, characterised by some planters as the worst experienced in twenty years, broke out more or less simultaneously on several estates in Demerara and Berbice. This disease is of common occurrence in cane cultivations, but is as a rule confined to a few stools in a field and more especially to those situated on the dam beds. Under certain conditions, the nature of which is not yet clearly understood, it suddenly assumes epidemic proportions and involves extensive areas. In 1914 Bancroft, recognising that functional failure of the root-system was an important feature of the disease, attributed it to destruction of the roots by *Marasmius sacchari* a fungus which had previously been reported as the cause of root-disease in Java, Hawaii and some of the West Indian Islands. The importance of the relationship of this organism subsequently became subject to criticism and various other fungi, notably species of *Pythium* and *Rhizoctonia*, were put forward by later investigators as being the more probable cause.

There is a certain aspect of the local epidemics of root-disease with which it is difficult to harmonise the view that this affection is primarily due to the operations of one or more facultative parasites. It commonly occurs—it appears almost to be an invariable rule—that the next year's crop from a field which has been swept by this disease is well up to standard. I have been assured that this is the case by planters and have observed the same effect myself. Perhaps 80% of the canes in a field become affected and dry up. The field is cut, and the bulk of the canes possi-

bly burnt as useless. The succeeding cultural treatment differs in no way from the ordinary routine. The next 'spring' is excellent and eventually a normal crop is reaped. The question which naturally arises is, What has checked the facultative parasite? If it is argued that for this organism to become operative some special environmental conditions must also exist, the sequence of events briefly described above would seem to indicate that the importance of these environmental conditions, in regard to the actual incidence of the disease, is excessively greater than that of the facultative parasite.

Indifferent cultivation has often been suggested as a contributory factor, and although this is probably true in many cases, experience has shown that severe epidemics can develop in its absence. The worst outbreak which came under my notice last year occurred on what is perhaps one of the most progressive estates in the Colony, an estate which has during the last few years averaged 3 tons of sugar per acre over about 2,500 acres, and on which some of the fields have given yields of 5 and 6 tons. The disease made its appearance at the same time in widely separated areas and progressed so rapidly that in little over a fortnight 70 to 80% of the canes in some of the affected fields were drying up and dying. The canes were from nine to ten months old, some being 'plants' and some ratoons, and up to the time of the attack had made excellent growth and promised a high yield. The soil was a heavy clay. Manurial treatment had consisted in applications of acid phosphate and sulphate of ammonia. The form of cultivation previous to planting had particularly varied. Some fields had been hand forked to a depth of 6 to 8 inches, some deep ploughed—a 14 to 15 inch cultivation—with tractor drawn disc ploughs; and others water-fallowed (that is flooded) for a year to 18 months before being 'taken in.'

The symptoms of the disease in 9 to 10 months old canes are briefly as follows. A progressive withering of the leaves sets in, starting with the oldest. The drying of each leaf proceeds from the apex and the margins inwards and is comparatively rapid, there is seldom any intermediate stage of yellowing, the dry dead tissue lies in immediate contact with the green living tissue. The root system is often scanty and may be variously rotted. The interior of the stem is, even in advanced stages, typically free from discoloration except at the base where a streaking due to the accumulation in the vascular bundles of a red hyaline substance is invariably present. The cessation of the transpiration-stream which must occur as the result of this stoppage of the *vasa* is undoubtedly responsible for the drying of the shoot, and it would seem that an understanding of the etiology of this disease is only to be arrived at through the determination of the cause of this effect. It has been shown that the production of the hyaline substance is a process which apparently always accompanies the death of tissue in the stem, and which may be induced by mechanical injury or the action of various toxins. Mechanical injury is unlikely to be the cause of an epidemic and it is probable that some toxin is concerned. This might either be secreted in the host tissue by a parasitic organism, or be absorbed from the soil by the roots. Microscopic examination of tissue from the affected portion of the stem has consistently shown that no pathological effect other than the deposit of the hyaline substance in the xylem and phloem elements is to be observed. A disease occurring in Porto Rico having similar external symptoms and certain other features in common has been found to be due to the invasion of the vascular tract by a myxomycete, *Plasmodiophora vascularum*. Comparative examination of material of both diseases establishes the fact that they have distinct origins. Repeated attempts to isolate a possible causative organism from the basal region of stems exhibiting the streaking in early stages of attack have always given negative results.

A secondary phase of the disease is the infection of dying canes by *Melanconium sacchari* which enters by way of the buds and leaf scars, eventually giving rise beneath the epidermis to numerous acervuli or pustules which burst through the rind and produce the condition formerly known as rind-disease. This local

association of root-and rind-disease appears to have a particular interest. One or two references are to be found in early departmental reports to outbreaks of rind-disease following dry years, and at least two comparatively recent outbreaks of root disease have been similarly associated with previous dry periods, whilst the latter part of 1924 was marked by a fairly severe drought. It is the practice on most of the sugar estates in the Colony to flood the fields periodically during such times when the rains fail, and there seems some reason to believe that these sudden and destructive epidemics are in some way related to this practice.

Recently evidence has been forthcoming from other cane growing countries which tends to show that soil organisms are perhaps only indirectly responsible for outbreaks of this disease and that the environmental factor is, as local experience seems to indicate, the more important one. Following on Hoffer's and Carr's observations in the United States on the association of root-rot in corn with the accumulation of iron and aluminium compounds, Dastur has reported from India a similar association between aluminium absorption and the incidence of wilt in cotton, and lately investigators in Hawaii have announced that root-rot in cane is correlated with aluminium toxicity of the soil.

During 1923, and again last year, investigations were carried out in order to determine whether the incidence of root-disease here was in any way connected with such nodal accumulations of aluminium salts as had been reported elsewhere, but evidence which could be considered satisfactory was not to be obtained. In spite of this it was thought that this line of investigation should be pursued, but it became obvious that in order to accomplish this object chemical examinations of the soils and plant residues were essential. It was suggested at the time that perhaps, under local conditions, aluminium compounds were not involved but that some other inorganic toxins might be operating. Past soil work (1) had shown that the lime (CaO)—magnesia (MgO) ratio of the local clay soils was considerably disturbed during dry weather, the lime being removed from the soil waters and deposited in the upper layer of the soil as calcium carbonate, so that a toxic excess of magnesia resulted. It happened, however, that it was not possible to arrange for the necessary departmental collaboration, but fortunately the interest of Mr. Maurice Bird was secured and he carried out an investigation which has yielded most interesting results (2). It was found that whilst the amount of available lime present in the soils of affected fields was largely in excess of the available magnesia, in the soil sifted from the roots of canes which had succumbed to the disease the latter occurred in toxic quantities. Analysis of the ash of the juice of affected canes indicated that the plants had accumulated nearly three times as much magnesia as lime, and a subsequent detailed analysis of roots, stems and leaves disclosed the fact that this preponderance of magnesia was mainly resident in the stem.

My interpretation of these results differs somewhat from Mr. Bird's. In his opinion the toxic lime-magnesia ratio found to occur in the vicinity of the roots had been caused by an exhaustion of lime consequent on the heavy demands of a rapidly growing crop, the impervious nature of the soil preventing a sufficiently free circulation of soil waters and thus of lime to balance this demand. Were this so, the percentage of available lime in the soil from around the roots would be expected to be very much lower than that present in the soil from other parts of the field. The figures obtained, however, show that the proportion of 1% citric acid-soluble lime in the former case is of the same order as that in the latter, and in one instance is greater. This would seem to suggest that the toxic lime-magnesia ratio was not brought about by an exhaustion of lime but rather by an increase in the quantity of available magnesia. Further examination of the figures appears to supply additional evidence in support of this view, for in spite of the fact that diseased plants

(1) Harrison, Stockdale, and Ward, *West-Ind. Bull.* v. 13, No. 2, p. 110-125, 1913.

(2) Bird, M., *Journal Board of Agriculture, Br. Guiana*, v. 13, No. 4, p. 256-261, 1925.

had been accumulating abnormally large quantities of magnesia in their tissues, roughly about 800% more available magnesia was found in the soil from the immediate neighbourhood of the roots than in an average sample.

It has been determined by previous complete analyses of the local cane soils (3) (4) that they contain much greater quantities of total magnesia than lime but normally only a small, non-toxic, proportion of the former is available.

It has yet to be shown that this abnormal absorption of magnesia is responsible for the death of the plants, that is, has induced the formation in the vascular tracts of the hyaline substance referred to above, but assuming this to be the case the evidence which has been secured appears to me to indicate that outbreaks of this disease are due to the operations of some unknown factors which render available abnormally large quantities of magnesia in the immediate vicinity of the roots.

During the course of my examinations of affected material, it was observed that the fine lateral rootlets of plants exhibiting early stages of the disease were often abundantly overgrown by fungal hyphæ which, although their adherence was very close, did not appear to affect penetration into the cortical tissue, at least until the condition of disease was much advanced. Three species of fungi were isolated from this situation which have since been identified at the Imperial Bureau of Mycology as *Trichoderma lignorum*, *Fusarium* sp., and *Gliocladium* sp. The two former are common saprophytic soil organisms, and the latter from my observations appears to be of the same nature. It is difficult to define the significance of this close association of these organisms and the cane roots. The apparent restriction of their occurrence in this manner to diseased canes seems to preclude the possibility of the relationship being symbiotic and to favour the opposite view. It is conceivable that some such competition as is suggested might arise between a crop plant and soil organisms during a time of stress brought about by the disturbance of the normal environment.

Small punctured holes as were described in last year's report were frequently noticed on the roots of affected canes, but it is still not possible to specify their cause. A similar form of damage associated with root-rot in Louisiana has been found to be due to the work of a snail, *Zonitoides arboreus*, and is claimed to be a major predisposing factor.

Top-Rot.—Cases of this disease have not been brought to my notice during the year. The two stools of D. 108 which were under observation in 1924 were drawn down and extended, but unfortunately owing to the severe drought which started in August and is still continuing many of the plants died, and the remainder made such poor growth that the experiment has had to be abandoned.

Chlorosis.—As a result of the enquiry conducted in 1924 into the cause of the chlorosis affecting many of the B.H.10 (12) canes in the Colony the conclusion was reached that this condition was probably the outcome of some nutritional disturbance. The latter part of 1924 was marked by a long drought and it was thought that perhaps this had been in some way responsible. In the discussion on root-disease reference has already been made to the effect of dry weather on the cane soils of the Colony in giving rise to a toxic lime-magnesia ratio as the result of the removal of the calcium ion from the soil waters and its deposition in the surface layer of the soil as calcium carbonate. It has also been shown that during such periods the concentration of magnesium and sodium salts in the soil waters becomes abnormally high. An experiment was carried out in order to determine whether the development of the chlorosis was in any way related to these high saline concentrations but it has been barren of result. Eight plants of B. H. 10 (12) were raised in rich garden soil in 12-inch pots. Two months after planting, at which time all were

(3) Harrison, Stockdale, and Ward. loc. cit. p. 140-141, 1913.

(4) Bird, M. Journal of Industrial Engineering Chemistry. v. 5, No. 12, 1913.

free from mottling, six were treated with varying weighed quantities of sodium and magnesium carbonates, the remaining two being retained as controls. Control and treated stools remained free from disease for two months when the mottling began to develop equally on all.

Other Diseases.—Ring-spot disease of the leaf due to *Leptosphaeria sacchari* was common but did not assume epidemic form. Red-spot (*Cercospora vaginiae*) maintained its normal prevalence; it is doubtful whether its infections cause any material damage. Isolated cases of failure of planted tops to germinate were found to be associated with *Thielaviopsis paradoxa*. The myxomycete recorded last year from Berbice on mature leaves has been determined at the Royal Botanic Gardens, Kew, as *Stemonitis herbatica*.

RICE.—*Blast.*—Scattered cases of blast were observed in the experimental fields, but there has not been any recurrence of the previous year's epidemic.

PLANTAINS.—Several outbreaks of the affection resembling 'moko-disease' have been reported during the year. The external symptoms are not very clearly marked but are typically those of a wilt. The leaves turn yellow and dry up, and eventually the whole plant dies and rots. Farmers regard the drying of the 'spire' or young enfolded leaves as characteristic of early stages of attack. Diseased bulbs exhibit internally a yellow to red discoloration of the vascular tracts which extends for some distance into the leaf bases, and is seen to pass from the parent bulb by way of the connecting 'neck' into the suckers. The general pathological appearance in this region is very similar to that found in cases of Panama disease in the 'Gros Michel' banana. Isolations were made from bulbs and leaf bases displaying vascular discoloration. Three bacterial forms were separated, the study of whose relation to the disease was prevented by my departure for the interior.

CACAO.—The condition with regard to witch-broom disease (*Marasmius perniciosus*) and pod-rot (*Phytophthora faberi*) are unchanged. The former affection appears to be confined mainly to cultivations in the Demerara and Berbice Rivers.

COCONUTS.—*Wilt.*—I expressed the opinion in my last report that the disease which is responsible for the dying out of the coconut palm in certain localities was falsely designated by the name of 'bud-rot' for the reason that the bud was as a general rule the last portion of the crown to become affected, whereas in true bud-rot, a disease caused by a species of *Phytophthora*, the earliest and most characteristic symptom was infection of the bud followed by collapse of the whole central whorl. A so-called 'bud-rot' disease has been described from Trinidad which is apparently identical with the one found here. At the Imperial Botanical Conference it was suggested that the term 'coconut-wilt' should be applied to this so as to differentiate it from true bud-rot. I propose to adopt this term, and to use it in future when referring to the disease known here formerly as 'bud-rot.'

COFFEE.—The study of the fungus associated with the wilt-disease of Liberian coffee encountered in the Pomeroun district has been continued. On cornmeal agar plates it gave rise to dark coloured hollow spherical bodies whose formation was preceded by what appeared to be the development of helical carpogonia. A trichogyne was not observed. Examination of these supposed perithecia, in cultures varying in age from 15 days to 3 months, failed to disclose the presence of asci. The mean diameter of these bodies was .061 mm. Disease-free coffee roots, which had previously been sterilised in plugged tubes were infected with pure cultures of this organism. Tubes containing sterilised but non-infected roots were set up as controls. The cultures were examined three months after infection. The cortical tissues were found to have been destroyed and the hollow spherical bodies had developed in abundance on the surface of the wood and in the disintegrated cortex. The control roots remained unchanged. The fungus was submitted to the Imperial Bureau for determination, and has been provisionally identified as a species of *Papulospora*.

BOTANICAL SURVEY.

I left Georgetown on the 11th of August in company with the Geological Survey in order to carry out a preliminary examination of the flora of the upper Mazaruni District. As fairly representative collections had been made previously, notably by Jenman and Ward, of the plants growing on the comparatively low-lying peneplain which characterises much of this locality, it was thought that it would be better to confine observations to the fringe of the sandstone escarpment which strikes across the Colony at a distance of roughly 150 miles from the coast, and represents the north-eastern margin of the Pakaraima Mountains.

No special provision had been made in the estimates for this expedition and the funds available did not permit of more than six weeks absence. It was therefore obvious that the examination could only be carried out in a very restricted area, for owing to the slow rate of progress, consequent on the difficulties encountered in navigating the lower reaches of the Mazaruni, it was estimated that at least a fortnight would be occupied in travelling, before the sandstone region was reached. Actually the first specimens secured in this area were collected sixteen days after departure from Georgetown.

Acting on the advice of the Government Economic Geologist (Mr. H. J. C. Conolly), who kindly adapted his own arrangements as far as possible to suit my convenience, I made camp at the foot of Macreba Falls, the point where the Kurupung River emerges from the sandstone formation in which it has its source. I was only able to remain ten days in this district for at the end of that period it became necessary for me to rejoin the main party which was then camped 30 miles down river and was about to move out again in the direction of the Mazaruni. I began my return journey at Kubenang a few miles below Kurupung Mouth on the 11th of September and reached Georgetown seven days later.

During my stay at Macreba I found that by travelling a short distance along the Membaru trail and then turning off in an easterly direction it was possible to reach with comparative ease the summit of the escarpment immediately above the falls at an attitude of some 1,500 feet. Unfortunately at the time of the visit few of the plants in this situation were in flower and the number of specimens collected was disappointing. The part of the plateau which came under observation was strewn with large cubical blocks of sandstone whose intervening crevices were filled with an accumulation of plant debris, in which the majority of the vegetation was rooted. The predominant plant in this particular region was a *Carludovica* (No. 389) which was frequently accompanied by a species of *Rapatea* (No. 388) closely allied to *R. paludosa* Aubl. Hiawa-gum trees (*Protium* sp. No. 384) were abundant on the upper slopes of the approach.

A little over 500 specimens, representing some 130 species, were collected during the expedition. The generic determinations of most of these have now been completed, and duplicate sets are being prepared which will shortly be forwarded to the Royal Botanic Gardens, Kew, for complete identification.

A certain amount of the material secured in the immediate vicinity of the sandstone escarpment is represented in the herbarium only by specimens collected by Jenman in the neighbourhood of Kaieteur. Among these are a *Pithecolobium* (No. 335), two or three species of *Macrocentrum* (Nos. 339, 340, 344 & 359), which occurred commonly on moss covered boulders, and an undescribed species of *Dimorphandra* (No. 348). The latter, a tall tree with broad bi-pinnate leaves and orange-red flowers borne terminally in spikelike racemes, is known by the Acawai as *howakaiyec*. I was informed that both they and the Arekuna use its bark in the construction of woodskins.

JENMAN HERBARIUM.

Some 130 species of Polypetalae collected between 1899 and 1910, whole determinations have recently been received from the Royal Botanic Gardens, Kew, were incorporated in the herbarium collection.

Dr. A. S. Hitchcock has very kindly named forty-two sheets of grasses which were submitted to him for the favour of identification. Among these, a grass collected on the lower Pomeroun River has been determined as *Phragmites communis* Trin., a species not previously recorded from the Colony.

The specimens which I collected in the Mazaruni District have been supplemented by small collections made by the Horticultural Superintendent (Mr. A. A. Abraham) in the same area, and by Mr. A. G. Davenport, Forest Surveyor, on the Wenamu and Ekereku Rivers.

The identifications have been received of a small consignment of plants which were forwarded to Kew for determination in August. These included specimens of the smooth and rough leaved crowa, or karoa. Both have proved to be wild forms of the cultivated pine-apple (*Ananas sativus* Schult), and it is suggested that the latter is probably var. *lucidus* Miller.

MISCELLANEOUS.

Examination of silicified wood.—The Government Economic Geologist submitted to me for examination a specimen of silicified wood which he had found in diamantiferous gravel in the Kumaka Itabu, Kurupung River. The specimen, which is remarkably light and fragile, appears to be recent for only the cell walls have become mineralised, the lumina, or cell-cavities, not yet being filled in. It consists in the main of elongated cells with wedge-shaped ends (tracheids) which are roughly rectangular in cross section and whose long axes are parallel to the long axis of the organ. They have a mean diameter of .044 mm. and an average length of 0.3 mm. Their walls are not continuous but are pierced by small, well preserved, pits. At varying intervals of one to four rows of these cells occur plates of tissue (medullary rays), one cell wide and one to eight cells deep, made up of narrow elongate cells with rounded ends, running in a plane at right angles to the tracheids. Tracheae (vessels) have not been distinguished; their absence and the general character of the 'wood' indicate that this fossil is the mineralised remains of some Gymnosperm.

Fish-poisons.—Several species of plants are employed by the aboriginal Indians of this Colony for poisoning fish. Some particular part of the plant, often the root or leaves, is crushed or pounded in a quantity of water, and the extract thus obtained is flung into the creek chosen for the operation. In a comparatively short time the fish in the immediate area are either stupefied, or killed, and float to the surface. The following plants are at present known to be used in this manner; others are said to exist but these have not yet come to my notice. *Clibadium Surinamense* L. (conami), *Tephrosia toxicaria* Pers. (yarroconalli, yawaracuna, assicona), *Euphorbia* sp. (conaparu), *Lonchocarpus* spp. (haiari), and a plant, at present unidentified, known as daukanani.

During the year samples of the complete plants of conami and yarroconalli, and of the roots and stems of haiari, were forwarded to Mr. F. Tattersfield, of the Rothamsted Experimental Station, who is investigating the value of this type of plant as a source of insecticidal toxins.

I have the honour to be,

Sir,

Your obedient Servant,

R. A. ALTSON,

Assistant Botanist and Mycologist.

The acting Director of Science and Agriculture.

REPORTS OF THE DEPARTMENT OF SCIENCE AND AGRICULTURE
FOR THE YEAR ENDED 31ST DECEMBER, 1925.

APPENDIX IV.

REPORT ON AGRICULTURAL INSTRUCTION.

APPENDIX IV.

BOTANIC GARDENS,
 GEORGETOWN, DEMERARA,
 6th April, 1926.

SIR,

I have the honour to submit a report for the year 1925 on Agricultural Instruction in the North West District, the Pomeroon District, the East Coast Demerara, the County of Berbice, and the Districts under the Agricultural Instructors as well as an abstract of the report of the Superintendent of District Gardens.

2. There are undoubtedly great possibilities of agricultural development in the Colony, and I am convinced that progress will only be in proportion with the adequacy and efficiency of agricultural instruction imparted to farmers, and school children in the rural districts.

3. It is pleasing to report that the farmers have now more confidence in the recommendations of the Agricultural Instructors of the Department. A travelling Agricultural Inspector has been appointed who will supervise the work of the Agricultural Instructors, and this will, I am sure, greatly increase the production of marketable produce.

4. A move in the right direction has been the placing of the School Gardens under the direct supervision of the Commissioner of Education, assisted by an Agricultural Instructor lent by this Department. A course of instruction in stock farming will be given this year. What is needed is practical instruction to the individual in the cultivation and preparation of exportable crops in the agricultural villages.

5. Orders have been issued to exercise more care in the selection of agricultural apprentices in the future, and that sons of farmers, with a good elementary education, be given the preference. It is important that we should turn out practical men, but it is also essential that they should have an efficient training in the theoretical principles of agriculture in its varied branches.

6. The Agricultural Instructor, North West District, reports :—

“I visited the farms during the year and gave practical demonstrations with reference to the various crops cultivated and the treatment of the soils. Lectures were also given to the school children.”

COFFEE.

“It is gratifying to report that the farmers are paying more attention to the cultivation of coffee, and there are now four well equipped coffee factories in the District. The berries on some of the plants are affected with a fungoid disease, and the Government Mycologist visited the station and reported on the disease and issued instructions for preventive measures to be taken. The coffee trees produced large crops during the period under review, and practically all the berries were collected. Weather conditions were satisfactory, and good prices were obtained.”

RUBBER.

“At the Issorora Experiment Station tapping operations were carried out, and 1,139 lbs. of excellent rubber obtained. A large number of seedlings were planted out.”

SWEET ORANGES.

“These trees continue to do very well, especially the variety called ‘Jenman’s favourite.’ The climatic conditions are most suitable for grafting.”

DISTRIBUTION OF SEEDS AND PLANTS.

“Various useful kinds of seeds and plants were distributed to farmers, and 765 “ornamental plants were supplied to the Commissioner for planting at the “Mabaruma compound.”

RAINFALL.

The following table gives the rainfall of the North West District during the last 10 years :—

Year.	Inches.	Parts.
1916	121	44
1917	87	91
1918	141	75
1919	141	84
1920	140	52
1921	129	36
1922	126	65
1923	109	91
1924	118	76
1925	94	49
Average (10 years)	121	26

7. The Agricultural Instructor, Belfield, East Coast, reports as follows :—

“Visits were paid to the farms during the year and instruction given in connection with the various crops cultivated. I also urged the growing of ground nuts, ginger and grapes. The principal crops under cultivation in the District are :— “Coconuts, rice, sugar cane, ground provisions and fruit trees. During the latter “part of the year a severe drought affected all the cultivations on the coast.”

COCONUTS.

“It is with great regret I have to report that very little attention has been “paid to this cultivation, many of the young plants being enveloped in bush and the “mature trees badly in need of cleaning. The drains between the plots are insuffi- “cient whilst those to be seen require digging.”

RICE.

“The area under rice shows some improvement, and more attention is paid to “the selection of seed padi, spacing and correct time of planting.”

GROUND PROVISIONS.

“No appreciable progress has been made with respect to this cultivation owing “to the drought. With interest, skill and co-operation there should be a flourish- “ing cultivation as soon as the rainy season sets in, especially as the new drainage “pumping stations are erected and ready to work.”

CANE-FARMING.

“The area under this crop has been reduced, and very little attention is shown “to the cultivation at present owing to the high cost of labour, and the low price of “sugar.”

FRUIT TREES.

“The interest in growing fruit is most disappointing. Only a few farmers give “their cultivations the attention they deserve and these have profited by a greatly “increased yield. I hope the farmers will become alive to their own interests in “establishing and cultivating their trees especially oranges, pears, sapodillas and “star apples, there being always a good and ready market for these.”

8. The Agricultural Instructor, Marlborough, Pomeroy, reports as follows :—

“The weather during the first half of the year was suitable for agricultural “purposes, but towards the end of the year became drier and finally ended in a

"drought. There was an abnormal precipitation in March when 14.55 inches of rain fell. March is usually a dry month, the early rains not being expected before the latter half of April. The rainfall of the Pomeroon for the year was 72 inches 23 parts as against 89 inches in the year 1924."

"The drought which came on at the end of the year has greatly affected the crops as shown by the decreased yields. It has, however, been of great assistance to the small farmers in affording them an opportunity of reclaiming new lands."

RUBBER.

"The rubber trees are free at present from leaf disease. Since the price rose, the rubber trees have been tapped resulting in 2,000 lbs. being shipped."

COFFEE.

"Greater attention is being paid to the cultivation of coffee, and more planting is being done. Very fair prices were obtained during the year and this has encouraged the farmers to increase the acreage."

GROUND PROVISIONS.

"The growing of provision crops has been well maintained. Very large shipments of plantains have been forwarded to Georgetown during the year. Only healthy suckers are now being used with the result that disease has been reduced. We are on the look out for a disease resisting type of sucker."

"A better class of corn is being produced due to efficient seed selection. The Pomeroon is well suited for corn growing, and the corn sent to the Exhibition was well commented on."

9. The Agricultural Instructor, New Amsterdam, Berbice, reports as follows:—

"The weather conditions during the year were unfavourable. A drought existed towards the end of the year which affected cultivations of all kinds. The rainfall for the year being only 40 inches or 37 inches less than that of 1924."

"The usual visits have been paid to the farms of the district and instruction given. I noticed considerable improvement in the cultivations and a willingness shown to improve and increase such crops as fruits, cacao and coffee. The attention of farmers has been called to the suitability of the soil for the cultivation of ground nuts and sweet potatoes, especially on the West and Corentyne Coasts whence they could be easily grown. There is a good local market for these."

GROUND PROVISIONS.

"There has been a substantial increase in the acreage under ground provisions. More attention has been paid to tillage, and I noticed a marked improvement in drainage. The drought during the latter part of the year ruined a considerable portion of the crop."

RISE.

"Again I have to complain of the failure of most of the farmers to plant their rice at the proper time. Those who planted in May reaped a rich harvest of padi of good quality. The straw return was very low."

COCONUTS.

"The coconut cultivations require much more attention from the farmers, and the way in which some plots are kept is to be deplored. The destruction of the coconut caterpillar, *Brassolis sophoræ* has received attention."

"The neglect of drainage and cultivation results in unsatisfactory yields, and this fact has been impressed on the farmers."

CACAO.

“ This cultivation is making steady progress as far as sanitation is concerned. Opportunity has been taken to carry out practical work on individual farms. Keen interest is being centred on this cultivation, and ultimately better selection and healthier crops will be secured.”

FRUIT.

“ Owing to the large demand for fruit plants received from farmers, authority has again been obtained to sell economic plants at the Public Gardens. This will, I am sure, meet with the approval of the farmers.”

DISTRICT AGRICULTURAL INSTRUCTORS.

10. Twelve monthly reports were received from each of the following District Agricultural Instructors :—

- John E. Wilson, in charge of the Essequibo Islands District.
- R. R. Pasea, in charge of the North Eastern Section, Essequibo Coast.
- C. Humphrys, in charge of the East Bank Demerara River District.
- J. M. Cush, in charge of the Berbice River District.
- J. M. Antrobus, in charge of the West Bank and Canals Polder District.
- R. B. Ross, in charge of the West Coast Berbice District.
- Thomas A. Archer, in charge of the Parika and Leguan District.
- D. W. Fingal, in charge of the Corentyne District.
- D. D. Haynes, in charge of the Mahaica-Mahaicony District.

The instructional work carried out by these officers will be of greater value when the new Travelling Agricultural Inspector takes over his duties.

11. The Instructor in charge of the Essequibo Islands District gave useful demonstrations on drainage, pruning and weeding.

12. The reports of the Instructor in charge of the North Eastern Section of the Essequibo Coast show that instructions were given in the management of stock, the selection of seed for planting, and also in the treatment of plant diseases and pests.

13. The Instructor in charge of the East Bank Demerara River District states that he gave instructions in agricultural practices such as draining, forking, weeding, and planting, also in the treatment of plant diseases and pests.

14. The Instructor in charge of the Mahaica-Mahaicony District was absent during the greater part of the year undergoing a course of training in Agriculture at the Imperial College of Tropical Agriculture, Trinidad.

15. The reports of the Instructor in charge of the Parika and Leguan District indicate that good advice was imparted to the farmers, especially in the improvement of stock, and seed selection.

16. During the year under review the following District Gardens were regularly inspected :—

- Bourda, Georgetown, Demerara ; Houston, East Bank, Demerara ; Belfield, East Coast, Demerara ; Den Amstel, West Coast, Demerara ; Wakenaam, Essequibo ; Suddie, Essequibo ; and Stanleytown, New Amsterdam, Berbice.

The Agricultural Assistant gave lectures and demonstrations in gardening to the school children at each of these gardens, and the instruction given has been greatly appreciated by the pupils. The Instructor received every possible help from the teachers in charge of the schools.

The following are the numbers of children attending the school gardens :—

Gardens.	Attendances.
Bourda, Georgetown, Demerara...	... 3,317
Houston, East Bank, " ...	... 1,663
Belfield, East Coast " ...	... 2,755
Den Amstel, West Coast " ...	... 470
Wakenaam, Essequibo ...	... 1,580
Suddie, Essequibo ...	... 1,597
Stanleytown, New Amsterdam, Berbice	... 1,820
	<hr/> 13,202 <hr/>

I have the honour to be,

Sir,

Your obedient Servant,,

W. FRANCIS,
Assistant Director.

THE ACTING DIRECTOR
OF SCIENCE AND AGRICULTURE.

**REPORTS OF THE DEPARTMENT OF SCIENCE AND AGRICULTURE
FOR THE YEAR ENDED 31st DECEMBER, 1925.**

APPENDIX V.

REPORT ON THE WORKING OF THE BIOLOGICAL DIVISION.

APPENDIX V.

BIOLOGICAL DIVISION,
24TH FEBRUARY, 1926.

SIR,

I have the honour to submit the following report of the Biological Division for the year 1925.

During the year I was absent from the colony from 5th April to 8th November on leave, at the same time attending the Second Imperial Entomological Conference held in London in June, as representative for British Guiana. While in England I also visited Rothamsted Agricultural Experiment Station with other Colonial Agricultural Officers as representative of the colony. A separate report on the Entomological Conference and visit to Rothamsted Experiment Station has already been submitted to you and is being published as a Sessional Paper for the Combined Court. It has, however, been thought advisable to deal with the Conference shortly here, and this will be done elsewhere in this report.

A portion of my leave was spent working under the late Professor H. Maxwell Lefroy at the Royal College of Science, South Kensington. The Imperial Bureau of Entomology and the various sections of the British Museum (Natural History) were visited on a number of occasions, and members of the staff consulted. Much useful information was thus acquired. I would like to take this opportunity of expressing my thanks to all the officers of the departments concerned, and especially to Dr. G. A. K. Marshall, Director of the Imperial Bureau of Entomology, Messrs. W. P. Pycraft, F. A. Laing and F. W. Edwards of the British Museum.

In February I was appointed Curator of the British Guiana Museum, and during my absence on leave Mr. R. A. Altson, Assistant Botanist and Mycologist, acted as Curator. Since my return to the colony I have commenced the task of rearranging the museum. Owing to the state in which the whole institution had been allowed to drift this has proved to be an undertaking of considerable magnitude, and it will be many months before much progress will be apparent.

As the result of my absence from the colony the work of the Division was considerably curtailed during the year, and this report represents its activities for virtually only five months. According to custom the various pests dealt with will be treated under the crops concerned, followed by such miscellaneous investigations as have also been undertaken.

Sugar-Cane.—Insect pests, the principal of which are the small moth-borers, *Diatraea saccharalis* F. and *Diatraea canella* Hmps., continue to take their toll of this crop, and for many years now little progress has been made in the control of these insects. Indeed it may be said that there has been a retrogression in some instances, and insects pests are neither receiving the attention which they formerly did, nor which their importance demands. There may be several reasons for this, one of which, no doubt, is the depression from which the industry has been suffering recently. Another is possibly the failure to realise the extent of such damage, that is, the actual loss in tons of sugar for which such damage is accountable. There are instances where methods of control have been recommended and were either inadequately carried out or entirely neglected. It should be realised that small moth-borers are difficult pests to combat, and that much time and thought are being expended, not only in this country but also in other sugar-growing countries, in devising measures whereby these insects may the better be brought under subjection, and unless every opportunity is seized to fight this pest little real progress can be expected in its control.

The growing of one crop over a large area, as in the case with sugar cane in this colony, where sometimes one may see hundreds of acres without so much as a

tree to break the expanse, offers conditions that are highly favourable to the increase of insect pests. When this is further aggravated by practices that act rather in favour of the spread of such pests and against that of their enemies, the conditions then become almost ideal for the multiplication of the pests. In this Colony, perhaps more so than in most other places, such practices prevail, and it becomes increasingly difficult in proportion to the extent in which these practices are indulged to bring pests under control. Continuous and systematic pursuit of control measures is an essential if any progress is to be made against the pests, haphazard and spasmodic efforts only allow the pests to recover their position and annul any advances that have been made against them, and in such instances, therefore, amounts to so much money thrown away.

It may be well, once again, to set out the measures to be employed against small-mothborers:—

1. Collection of eggs and caterpillars.
2. Elimination of "false rows" or old banks in plant fields.
3. Destruction or burial of refuse cane and rejected tops in fields.
4. Selection of planting material—"tops."
5. Immersion of "tops" for 72 hours in water to kill contained borer.
6. Abolition of the burning of fields.
7. Conservation of parasites, that is, the return to the fields of parasitized egg-clusters and larval parasites.
8. Artificial rearing of egg and larval parasites.

During the coming year it is proposed to carry out investigations in connection with a method of breeding parasites which I devised some four years ago, and which, up to the present, it has not been possible to thoroughly exploit. It is hoped in this way to advance our knowledge in this direction.

In the period under review investigations were carried out at the British Guiana Sugar Planters' Experiment Station on the loss caused through damage by *Diatraea*, but up to the time of writing these investigations have not been completed.

A paper entitled "Sugar-cane moth borers (*Diatraea* spp.) in British Guiana" by Mr. H. E. Box has recently been published in the Bulletin of Entomological Research, Vol. XVI., Pt. 3, January, 1926, in which Mr. Box deals with life history and control of these insects in this Colony, and gives an account of his work in that direction. In connection with an introduction of the parasite *Euzenillopsis diatraeae* into this colony from Porto Rico which was undertaken by Mr. Box, as mentioned in my previous report, he states:—"That the experiment was successful as an introduction was proven by the finding upon the penultimate day of the writer's stay in Berbice of one puparium from which a small male *E. diatraeae* emerged during the writer's return to Porto Rico in January, 1925." It is unfortunate that no later information is available on the prevalence of these parasites in the fields of the estate on which they were released.

Rice.—During the year a report was made in the press on the prevalence of Black-headed borers, *Diatraea saccharalis* F., in rice in certain districts. This insect has been known to attack rice plants in this Colony for a number of years, but up to the present has not been observed to do any serious damage. Its prevalence in the different rice-growing districts will be investigated during the coming crop, and accurate information as to the damage it is performing obtained.

Coconuts.—No serious outbreak of coconut pests were observed or recorded during the year.

Investigations in connection with the Coconut Borer, *Castnia daedalus* Cram., were continued during the year, and some success in this direction has been obtained. Descriptions have been made of several of the stages of this insect, but

the complete life history has not yet been worked out. The insect is not easily reared, and many difficulties have had to be overcome, all of which have apparently not yet been surmounted. Data has also been accumulated on the distribution of the insect, which appears to be more prevalent than was at first supposed. There still remains a considerable amount of work to be done on this insect and its control, and this is proving to be a long and arduous investigation. The investigations will be continued during the coming year.

THE SECOND IMPERIAL ENTOMOLOGICAL CONFERENCE.

In June last the Second Imperial Entomological Conference was held in London, and, as previously mentioned, I attended as delegate for this colony. Representatives from the Dominions and many Colonies were present and the Conference was in every way highly successful. Conferences such as these keep workers who are more or less isolated from the centres of research, as one is in this colony, in touch with one another and with the more important recent advancements in their line, and in this way they are of inestimable value. For myself I can say that much useful information was acquired while the personal touch gained by meeting workers in similar lines from other parts of the world has proved useful in many ways.

The subject matter of the Conference has been already dealt with elsewhere so will not be repeated, but of the many interesting papers read at the Conference there is one which I would like to touch upon here as some of the points brought out in it are peculiarly applicable to this colony. In this paper—entitled “The Aims and Organisation of Economic Entomology”—which was read by Dr. G. A. K. Marshall, Director of the Imperial Bureau of Entomology, it was pointed out that:—“The concentration of entomological work in the hands of a comparative small Government department had undoubted advantages in the early stages of a country, but also presented some undesirable features. In the first place it tended to create in the minds of the farmers and planters the idea that an entomologist is merely a person who can be called in to assist in coping with insects when they have become so numerous as to cause serious damage to their crops; in other words that the functions of the entomologist are merely curative. This idea was fundamentally unsound.”

These remarks apply very much to this colony, but one may add that here the entomologist is invariably called in when the pest has become uncontrollable, and even then if the position is not too hopeless for him to suggest measures of control and he advises a treatment, little or no attempt is made to carry it out. Apparently the only reason for calling in the entomologist at all is to absolve themselves from any charge of negligence, while there is still a lurking belief that by some peculiar and indescribable magical power he may be able to waft the offending creatures away. Unfortunately this attitude is not confined to merely the smaller and less educated agriculturists.

MISCELLANEOUS.

The severe drought experienced during the year had its effect on insect pests, as was the case in 1912, and has been responsible, I am convinced, for the comparatively few severe outbreaks of pests that occurred during the year. It is probable that with the advent of the rains there will be renewed activities of insect pests amounting to severe outbreaks in many instances.

Mosquitoes.—Through the kindness of Mr. F. W. Edwards of the British Museum a number of determinations of mosquitoes were obtained during the year. Over eighty species of these insects are now known from the colony, and it is hoped to publish a list of these insects in the near future.

Silk.—Since my return from leave the question of silk production has received attention, and efforts are being made to obtain trial shipments of eggs for experimental purposes. As far as I am aware no previous attempts have been made to pro-

duce silk on a commercial scale in this Colony; and it would appear to be advisable that information on this point be obtained. Although the world's silk production amounts to over 70 million pounds annually the demand is in excess of this, and at the present time but few British countries contribute to this output.

Collection.—A considerable amount of work was performed during the year in maintaining the collection and compiling notes and data on various pests. The entire alcoholic collection was gone over and tubes refilled and sealed, while the revision of the card index of specimens was completed. In addition a host catalogue was commenced which will form a very useful and important adjunct when completed.

I should like here to point out the necessity for an increase of the staff of the Division. Although the volume of work and enquiries has considerably increased within recent years—I speak from a knowledge of the Division almost since its inception in 1911—there has been no increase in its staff during the whole period, indeed whereas some seven years ago there was a trained assistant in the Division such is not the case at the present time, with the result that the work of the Division is considerably handicapped. It becomes increasingly difficult year after year to carry out investigations on pests and their control, as well as to determine the specimens collected and to keep the necessary notes and records concerning them. The life histories and habits of many of the insect pests of the colony have still to be worked out, and such investigations are often long and arduous.

I have the honour to be,

Sir,

Your obedient Servant,

L. D. CLEARE, Jr.,
Government Economic Biologist.

THE ACTING DIRECTOR
OF SCIENCE AND AGRICULTURE.

REPORTS OF THE DEPARTMENT OF SCIENCE AND AGRICULTURE
FOR THE YEAR ENDED 31st DECEMBER, 1925.

APPENDIX VI

REPORT OF THE VETERINARY DIVISION.

APPENDIX VI.

SCIENCE AND AGRICULTURE DEPARTMENT,
 VETERINARY DIVISION,
 Georgetown, Demerara,
 15th April, 1926.

SIR,

I have the honour to submit the following report for the year ended 31st December, 1925.

The period under review was marked by an outbreak of Anthrax among the mules at Pin. Providence, East Bank, Demerara, in December which happily was only sporadic in its nature. The deaths resulting therefrom were comparatively few.

The general health of the Live Stock of the Colony has been satisfactory, a circumstance which is due largely, if not entirely, to existing means which permit of greater and more efficient control than the Department hitherto had over any possible outbreak of disease.

There was a reported outbreak of Tuberculosis among the cattle at His Majesty's Penal Settlement, but after a minute examination carried out by me, I came to the conclusion that the tests negatived the presence of the disease in the animals. My examination, however, revealed that two Tamworth hogs were tubercular and I was compelled to recommend that no hogs should be kept at the Settlement because of the danger which exists there of infection of the disease which is peculiar to wild animals, and which is more often generalised in swine than in cattle.

THE STOCK AT THE GARDENS.

2. Pure Bred Cattle :

Bulls—Guernsey	...	...	1
Bulls—Holstein	...	...	1
Heifer—Holstein	...	...	1
Bulls—Zebu	...	...	1
Cows—Holstein	...	...	2
Bulls—Holstein	...	...	1
Sheep—Imported ram	...	...	1

These animals were kept in fair condition. There was only one death,—that of a Shorthorn Bull ("Rooseveldt II.") which, on account of old age, was shot.

3. *Fowls*.—The White Leghorns, 2 cocks and 11 hens, laid 1,075 eggs as compared with 1,000 eggs of the previous year, which were valued at \$120.74.

LIVE STOCK AT ONDERNEEMING FARM.

4. Cows	...	...	22
Heifers	...	...	10
Bull Calves	...	...	9
Shorthorn Heifer (Thoroughbred)	...	...	1
Shorthorn Bull	...	...	1
Heifer Calves	...	...	4
<i>Buffaloes</i> .—			
Cows	...	...	10
Bulls	...	...	1
Heifers	...	...	6
Calves (Bulls)	...	...	3
Calves	...	...	3

COLONY OF MAURITIUS

ANNUAL REPORT

ON

PRIMARY EDUCATION, 1924

I.—ROLL AND ATTENDANCE

The number of Primary Schools in the Colony was 149 made up of 57 Government Schools, 65 Roman Catholic, 19 Church of England, 2 Church of Scotland, 4 Hindoo and 2 Mahomedan Aided Schools.

The total number of children on roll of these schools was 32,901 as compared with 31,601 for the previous year, an increase of 1,300.

The average attendance for the year was 22,582 as compared with 22,538 for 1923, giving a percentage of 68.6. a decrease from that of the previous year.

I append Roll and Attendance for the year for the different districts :—

Districts	GOVERNMENT SCHOOLS						AIDED SCHOOLS					
	Roll		Attendance		Percentage of Attendance		Roll		Attendance		Percentage of Attendance	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Port Louis ...	1,509	803	1,105	602	73.2	74.9	2,494	1,900	2,013	1,500	80.7	78.9
Plaines Wilhems ...	1,980	892	1,265	592	63.3	66.2	3,746	2,264	2,472	1,491	65.9	65.8
Grand Port ...	1,914	619	1,285	452	67	73	880	461	571	312	64.8	67.6
Riv. du Rempart ...	868	90	567	57	65.3	63.3	990	395	685	212	69.1	53.6
Pamplemousses ...	1,145	372	726	229	63.4	61.5	702	118	511	68	72.7	57.6
Flacq ...	1,043	365	662	229	63.4	62.7	1,812	408	1,313	268	72.4	65.6
Savanne ...	1,110	302	722	188	65	62.2	511	299	341	188	66.7	62.8
Moka ...	392	77	233	45	59.4	58.4	1,237	439	882	280	71.3	63.7
Black River ...	332	156	232	108	69.8	69.2	208	68	138	38	66.3	55.8

15,721 children are stated to be Roman Catholics, 563 Church of England, 251 Church of Scotland, while the number of Mahomedan children is 4,075, Hindoo 12,073 and other denominations 218.

The number of Indian children attending the Primary Schools was 17,214 made up of 14,743 boys and 2,471 girls, an increase of 816.

The number of Indian children attending Primary Schools during the last 5 years is shown below :

1920		1921		1922		1923		1924	
Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
10,885	1,675	12,565	1,711	13,538	2,304	13,863	2,535	14,743	2,471

II.—EXAMINATIONS

The regular examination of the Schools began as usual, in March, the Inspectorate remaining as at the end of December, 1923.

The following statement shows the percentage of passes in the different Standards for Government and Aided Schools arranged according to districts :

Districts	GOVERNMENT SCHOOLS						AIDED SCHOOLS					
	Standards						Standards					
	I	II	III	IV	V	VI	I	II	III	IV	V	VI
Port Louis ..	89	90	57	55	54	60	93	93	82	73	63	85
Plaines Wilhems ...	93	82	63	50	48	72	92	90	72	57	53	58
Grand Port ...	94	88	72	54	56	67	97	93	85	64	83	79
Rivière du Rempart...	92	91	79	57	63	79	93	95	71	64	79	69
Pamplemousses ...	88	93	75	62	67	81	87	80	65	66	40	62
Flacq ...	88	87	56	52	55	75	90	90	73	63	66	76
Savanne...	87	81	69	54	58	69	74	79	71	68	67	76
Moka ...	95	88	74	58	74	89	92	93	75	60	70	83
Black River ...	92	79	81	47	48	75	93	97	69	73	41	82

In optional subjects the percentage of passes in English, French and Geography for Government and Aided Schools is given below :

Subjects	GOVERNMENT SCHOOLS				AIDED SCHOOLS			
	Standards				Standards			
	III	IV	V	VI	III	IV	V	VI
English - - -	71	75	58	71	80	80	68	81
French - - -	70	74	58	70	78	77	71	73
Geography - -	71	41	42	51	80	60	50	56

The examination for Standard VII was held in December. 188 boys from 13 schools were presented and examined at one centre. Only three passed the examination.

As a result of the Inspection visits paid to the Schools during the year, 139 schools were classed as " Good " earning a grant of R. 1.50 per pupil in average attendance, and 10 as " Fair " Earning R. 0.75 per pupil.

III.—SCHOOL BUILDINGS

The new school building at Clarens was completed in September. Curepipe Boys and Souillac Government Schools were enlarged, while extensive repairs have been done to Champ de Lort and to Curepipe Girls Government Schools.

Government has purchased and will enlarge two buildings presently used as Government Schools at Moka and at Belle Rose.

A building grant of Rs. 5,000 was allowed to assist schools in providing suitable rooms and furniture for Infants Classes, but little of this has been applied for.

The Maintenance Grants to Aided Schools have been increased in the case of 10 schools, owing to additions or extensive repairs having been made to the buildings, or to the acquisition of new and better buildings.

IV.—SCHOOL GARDENS

These gardens are now under the charge of the Department of Agriculture and an Officer is sent regularly to inspect them and to give the Teachers any necessary assistance. There are at present 23 school gardens in the Colony, in most of which satisfactory progress has been made.

As in previous years the Department of Agriculture supplied seeds, plants and fencing material for these gardens.

Money prizes were given this year for the best kept gardens. These prizes were awarded as follows:—

- 1st prize of Rs. 50 to Highlands C. E. Aided School
- 2nd " 40 " Plaisance Orphanage
- 3rd " 35 " Rivière des Anguilles Government School
- 4th " 30 " Souillac Government School
- 5th " 25 " Quatre Bornes "
- 6th " 20 " Palma C. E. Aided School

Prizes for the best collection of vegetables were won by Souillac Government School and Quatre Bornes Government School at the Agricultural shows at Curepipe and Flacq respectively.

V.—HYGIENE, NATURE STUDY, &c.

Hygiene and Nature Study were taught according to a prescribed scheme, the lessons being oral and adapted to the age and intelligence of pupils. The work of taking blood smears from school children was continued, and quinine distributed in accordance with suggestions made by the Director, Medical and Health Department.

In Port Louis, Souillac and other centres, cinematograph films dealing with the Rat Menace, Malaria and Ankylostomiasis were shown to school children and their teachers, and explained in a most interesting manner by Dr. C. H. Yeager, Director of the Ankylostomiasis Department. The pupils evinced keen and intelligent interest in these films.

The pictorial newspapers for children are appreciated by the Schools among which they are circulated and will no doubt be used to the fullest advantage as a means of cultivating the intelligence of pupils in the upper classes of a school.

VI.—PHYSICAL DRILL

No special Drill Classes for men were held in 1924, those of 1923 having finished only in December. The Annual Drill Competition took place on June 14th in Port Louis, when 27 schools competed. There was again a crowd of spectators composed of Teachers and pupils from all parts of the island, a proof of the increasing interest aroused by these Competitions.

The best Drill squads came from Rivière des Anguilles and Mahebourg Boys' Government Schools, the former winning the shield for the year and a prize presented by Mr. D. Lallah, the latter a prize presented by the Honourable J. Tranquille.

VII.—SCHOLARSHIPS

In the final examination for the Boys Scholarships 278 candidates entered and 28 passed, the figures for the previous year being 181 and 33 respectively. The weak subjects were Arithmetic and Nature Study. The schools gaining scholarships and exhibitions tenable at the Royal College are given below :—

Schools	Scholarships	Exhibitions
1. Curepipe Road C. E. School	2	1
2. St. Jean Baptiste de la Salle R. C. School	2	0
3. Western Suburb Government School	0	2
4. St. Enfant Jesus R. C. School	1	1
5. Rose Hill Mahomedan School	1	0
6. Inmaculée Conception R. C. School	0	1
7. Beau Bassin Boys Government School	0	1

For the four scholarships awarded to Girls 136 candidates entered and 30 passed the Examination, as against 140 and 32 respectively in the previous year.

The schools gaining scholarships were :—

Curepipe Girls Government School	2
Beau Bassin Girls	1
Souillac Girls	1

For Handicraft Apprenticeships there were 11 candidates and 2 were appointed.

For Apprenticeships in Mechanical Engineering 10 competed and 2 were appointed.

For Horticultural Apprenticeships 3 entered and 2 were appointed.

There was no candidate for Civil Engineering Apprenticeships.

For Needlework Apprenticeships there were 13 competitors and 4 were appointed by the Ladies Needlework Committee :—

- 1 from Cassis Road Government School
- 2 from Beau Bassin Girls Government School
- 1 from Eastern Suburb Infants School

For the Technical Scholarships the number of Candidates has not increased, many boys having joined the New Industrial School at Cassis.

VIII.—TEACHERS

The total number of Teachers in the Primary Schools in 1924 was 460 in Government Schools and 560 in Aided Schools. The following table shows the number of men and women separately arranged according to the certificates held.

Schools	Year	Men						Women					
		I	II	III	Certificated Monitors	VI Standard Certificates	Total	I	II	III	Certificated Monitresses	VI Standard Certificates	Total
Government	1923	47	16	19	30	34	146	19	10	21	88	63	201
do.	1924	47	19	15	51	33	165	14	10	24	97	50	195
Aided	1923	33	5	33	38	56	165	18	14	53	162	116	363
do.	1924	31	8	34	57	54	184	15	17	58	181	105	376

The Teachers Examinations for certificates were, as usual held in August. The number of candidates and results are shown in the following table :

Class of Certificates	Number Examined			Number Passed		
	Men	Women	Total	Men	Women	Total
II Class ...	33	15	48	10	6	16
III Class ...	61	43	104	6	7	13
Monitors ...	292	345	637	55	88	143
	383	403	789	71	101	172

The total number of candidates was 592 and the total number of passes 127 for the previous year. Candidates for Monitors Certificates were very weak in English, in Arithmetic and in School Management.

First Class Certificates (granted without examination) were issued to 2 male teachers.

IX.—LECTURES TO TEACHERS.

Dr. Keisler of the Medical and Health Department again delivered his course of Lectures on Hygiene to young Teachers. These lectures were attended by 122 teachers 26 of whom passed an examination held at the end of the course.

Lectures on Elementary Agricultural Science were started by Mr. Clegg of the Department of Agriculture on 22nd September, 1923 and continued till 1st March, 1924. These were attended by 23 Teachers. The examination was held on the 8th March, 1924 and 13 Teachers sat for the examination, all of whom passed.

X. TRAINING OF TEACHERS.

At the beginning of the year there were 26 men and 19 women in training at the two Training Colleges. First year students were examined according to new regulations, while second year students took the usual examination for Second Class Teachers, Certificates.

No new students were admitted in October so the student now in training number 13 men and 7 women.

For practice in Teaching students still visit the neighbouring Government and Aided Schools, and for Criticism Lessons have to depend on classes sent from these schools once a week.

XI.—FEMALE EDUCATION.

The number of Girls attending the Primary Schools is 10,028 an increase of 295 from last year.

The following table shows the numbers for the last five years, an increase from 1920 of 25.4%

1920	1921	1922	1923	1924
7,992	8,830	9,274	9,733	10,028

There is a decided improvement in the quality of the Needlework done by Girls in Primary Schools. The cutting out of garments, however, still requires attention.

XII.—MEETINGS OF THE SCHOOLS COMMITTEE.

The Schools Committee held 6 meetings, at which questions affecting the new Code, Primary Schools Scholarships for Boys, and Staffing Regulations were discussed.

XIII.—SECONDARY EDUCATION.

The number of Secondary Schools in the Colony in 1924 was 9—two of these being for boys only, while the others are Girls Schools, with a small percentage of boys in the Preparatory and Junior classes. The total number on roll was 1,413 made up of 751 boys and 662 girls as compared with 708 boys and 618 girls in 1923.

These Schools were regularly visited during the year and Classes V, IV and III were examined orally and in writing in October and November. Dictation and Arithmetic were again very weak, the work done in Arithmetic being neither accurate nor speedy.

The following tables shows the results of the December Examinations :

		Classes	No. Examined	No. Passed
Boys	...	II	79	17
"	...	I	68	4
Girls	...	II	63	40
"	...	I	63	35
"	...	B	51	31
"	...	A	28	15

The passes in Cambridge Local Examinations were as follows :

Junior :	Boys 9	...	Girls 4
School Certificate :	" 4	..	" 7

One scholarship was awarded to Yvon Bouton in Class I on the results of the Examination held in December 1924 ; and the scholarship awarded to the girls in Class I was gained by Eliane Esnouf.

XIV.—TECHNICAL AND COMMERCIAL.

The number of pupils attending Port Louis Technical School during 1924 showed a large increase in the full time section. There are now over 40 boys in this section, and notwithstanding a long waiting list, more cannot, at present, be admitted.

The number of boys from Primary Schools receiving instruction at this school in Manual Training and Drawing is about 250.

The corresponding numbers for Beau Bassin are 55 and 200 respectively.

The attendance was unusually good ; there is no seriously detrimental effect from illness, epidemic or other, to record.

Drawing and Woodwork continue to be the popular subjects taught. Much good work was done, and situations as artizans were found for several of the boys.

The two Handicraft Apprenticeships awarded annually by Government were won by pupils of the Port Louis School.

Commercial Classes for clerks in Book keeping and Accountancy and shorthand were continued.

The Chief Instructor of the Industrial School at Cassis supplies the following report on the working of the school :

" As stated in my last report, the numbers had fallen off and continued to do so until the month of June, after which month new pupils presented themselves for enrolment owing to a letter having been circulated to all the schools, so that by the month of December, 59 boys had been enrolled mostly from the districts. The average attendance was good and the same keen interest taken in the work.

" During the first six months the boys were employed in making and fixing the doors, windows, &c., for the new class room and office, all of which were made in the school.

" In the month of October the school sent to the Exhibition at Curepipe, a number of exhibits for which a silver medal and diploma of Merit were awarded. This exhibition was the means of bringing the work of the school to the notice of the public. A number of orders were booked accordingly and the school has been kept quite busy executing these orders ever since.

" The sums earned by the school during the year amounted to Rs. 3,600."

May 28th, 1925.

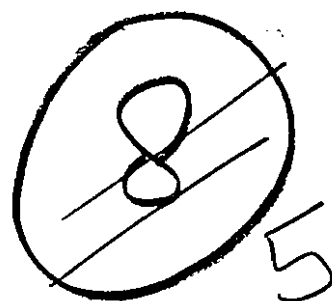
H. LALOUETTE,
Superintendent of Schools.

COLONY OF MAURITIUS

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ANNUAL REPORT

ON



PRIMARY EDUCATION, 1925

I.—ROLL AND ATTENDANCE

The number of Primary Schools in the Colony was the same as in the previous year viz : 149 ; made up of 57 Government Schools, 65 Roman Catholic, 19 Church of England, 2 Church of Scotland, 4 Hindoo and 2 Mahomedan Aided Schools.

The total number of children on roll of these Schools was 33,588 as compared with 32,901 for the previous year, an increase of 687.

The average attendance for the year was 23,970 as compared with 22,582 for 1924 giving a percentage of 71.3, an increase over that of the previous year.

I append Roll and Attendance for the year for the different districts :—

Districts	GOVERNMENT SCHOOLS						AIDED SCHOOLS					
	Roll		Attendance		Percentage of Attendance		Roll		Attendance		Percentage of Attendance	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Port Louis -	1,416	749	1,060	601	74.8	80.2	2,531	1,946	2,005	1,533	79.2	78.7
Plaines Wilhems -	2,156	975	1,465	672	67.9	68.9	3,797	2,240	2,724	1,595	71.7	71.2
Grand Port -	1,930	615	1,364	413	70.6	67.1	829	427	603	310	72.7	72.5
Riv. du Rempart -	873	106	578	63	66.2	59.4	1,022	411	776	314	75.9	76.3
Pamplemousses -	1,217	381	817	242	67.1	63.5	698	132	579	107	82.9	81
Flacq -	1,171	392	757	258	64.6	65.8	1,851	450	1,319	289	71.2	64.2
Savanne -	1,128	336	768	207	68	61.6	554	305	325	193	58.6	63.2
Moka -	397	67	265	41	66.7	61.1	1,242	458	912	289	73.4	63.1
Black River -	316	137	218	97	68.9	70.8	254	79	164	47	64.5	59.4

15,825 children are stated to be Roman Catholics, 568 Church of England, 273 Church of Scotland ; while the number of Mahomedan children is 4,251, Hindoo 12,199 and other denominations 472.

The number of Indian children attending the Primary Schools was 18,174 made up of 15,533 boys and 2,641 girls, an increase of 960.

The number of Indian children attending Primary Schools during the last five years is shown below :

1921		1922		1923		1924		1925	
Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
12,565	1,711	13,538	2,304	13,863	2,535	14,745	2,471	15,533	2,641

II.—EXAMINATIONS

The regular examination of the Schools began as usual, in March, the Inspectorate remaining as at the end of December, 1924.

The following statement shows the percentage of passes in the different standards for Government and Aided Schools arranged according to Districts :

District	GOVERNMENT SCHOOLS						AIDED SCHOOLS					
	Standards						Standards					
	I	II	III	IV	V	VI	I	II	III	IV	V	VI
Port Louis - - -	94	85	77	62	57	76	93	85	62	57	49	64
Plaines Wilhems - - -	89	83	57	47	39	60	93	88	61	52	41	54
Grand Port - - -	89	86	61	50	49	61	97	83	70	53	50	64
Riviere du Rempart - - -	88	90	67	62	54	67	92	86	66	48	50	68
Pamplemousses - - -	94	90	79	66	64	85	76	84	66	57	64	66
Flacq - - -	84	92	63	51	60	54	93	86	68	53	42	64
Savanne - - -	90	85	59	56	52	62	88	86	78	57	58	73
Moka - - -	73	83	57	42	38	78	95	96	72	58	42	52
Black River - - -	88	82	54	35	25	52	80	85	65	87	39	50

In optional subjects the percentage of passes in English, French and Geography for Government and Aided Schools is given below :

Subjects	GOVERNMENT SCHOOLS				AIDED SCHOOLS			
	Standards				Standards			
	III	IV	V	VI	III	IV	V	VI
English - - -	79	79	76	83	80	80	68	81
French - - -	67	75	66	73	78	77	71	73
Geography - - -	75	67	47	59	80	60	50	56

The examination for Standard VII was held in December. 239 boys from 12 schools were presented and examined at one centre. Only four passed the examination.

As a result of the Inspection visits paid to the Schools during the year, 145 schools were classed as "Good" earning a grant of R. 1.50 per pupil in average attendance, and 4 as "Fair" earning Rs. 0.75 per pupil.

III.—SCHOOL BUILDINGS

The Government School for Girls at Rose Belle was reconstructed on the plan approved by Government, and it is proposed to proceed, where necessary, with the gradual reconstruction of other schools.

On re-assessment, the Maintenance Grants to two Aided Schools have been increased.

IV.—SCHOOL GARDENS

These gardens are under the charge of the Department of Agriculture and are inspected regularly by the Chief Agricultural Officer of that Department and his Assistants who give the necessary assistance to the Teachers. There are at present 21 school gardens in the Colony, in most of which satisfactory progress has been made.

As in previous years the Department of Agriculture supplied seeds, plants, tools, fencing materials and manure for these gardens.

Money prizes for the best kept gardens were awarded as follows :—

- 1st prize of Rs. 50 Plaisance Orphanage C. E. Aided School
- 2nd do. 40 Rivière des Anguilles Government School
- 3rd do. 35 Palma C. E. Aided School
- 4th do. 30 Highlands C. E. Aided School
- 5th do. 25 Nouvelle France C. E. Aided School
- 6th do. 20 Old Grand Port R. C. Aided School

At the Agricultural show held at Réduit in the month of October prizes for the best collections of vegetables were won by Palma C. E. Aided School (Rs. 10) and by the Beau Bassin Industrial School and the Quatre Bornes Government School (Rs. 5 each.)

V.—HYGIENE, NATURE STUDY, &c.

Regular instruction in Hygiene and Nature Study was given in all the schools, and quinine was distributed on a liberal scale throughout the year among the schools lying in unhealthy localities.

Lectures illustrated by lantern slides were delivered at the Schools in various districts where a hookworm propaganda was successfully carried on.

Pictorial newspapers for children were freely circulated among, and greatly appreciated by the Schools throughout the year.

VI.—PHYSICAL DRILL

Special Drill classes for men were held from March to May, 1925, at the end of which 30 Teachers, out of 39, were passed as qualified for teaching Drill in their schools.

The annual Drill Competition took place at Line Barracks, Port Louis, on June 20th, in the midst of a large crowd of spectators, including teachers and pupils from all parts of the Island.

The best Drill squad came from Camp Fouquereaux Government School, to which the shield for the year was presented by His Excellency the Governor, and a prize by Mr. D. Lallah. Prizes were also presented by the Honourable J. Tranquille to the next best squads, namely, those coming from the Edward VII Street C. E. Aided School and the St. Infant Jesus R. C. Aided School.

VII.—SCHOLARSHIPS

In the final examination for the Boys Scholarships 283 candidates entered and 43 passed, the figures for the previous year being 278 and 28 respectively. The weak subjects were English, Hygiene and Arithmetic. The schools gaining scholarships and exhibitions tenable at the Royal College are given below:—

Schools	Scholarships	Exhibitions
1. St. Infant Jesus R. C. A. School	3	2
2. Rose Hill Government School	1	1
3. Highlands C. E. Aided School	...	2
4. Curepipe Boys Government School	1	...
5. Quatre Bornes Government School	1	...
6. de la Salle R. C. Aided School	...	1

For the four scholarships awarded to girls 155 candidates entered and 20 passed the examination, as against 136 and 30 respectively in the previous year.

The schools gaining scholarships were:—

Visitation R. C. Aided School	1
Rose Hill Government School	1
Beau Bassin Girls Government School	1
Central Girls Government School	1

For Handicraft Apprenticeships there were 11 candidates and 2 were appointed.

For Apprenticeships in Mechanical Engineering 27 competed and 5 were appointed.

For Horticultural Apprenticeships 21 entered and 4 were appointed.

There was no candidate for Civil Engineering Apprenticeships.

For Needlework Apprenticeships there were 7 competitors and 4 were appointed by the Ladies Needlework Committee, as under:—

- 3 from Beau Bassin Girls Government School
- 1 from Pamplémousses Road Government School.

There has been an appreciable increase in the number of candidates for the Mechanical Engineering and Horticultural Apprenticeships.

VIII.—TEACHERS

The total number of Teachers in the Primary Schools in 1925 was 378 in Government Schools and 561 in Aided Schools.

The following table shows the number of men and women separately arranged according to the certificates held.

Schools	Year	Men						Women					
		I	II	III	Certified Monitors	VI Standard Certificates	Total	I	II	III	Certified Monitors	VI Standard Certificates	Total
Government	1924	47	19	15	51	33	165	14	10	24	97	50	195
do.	1925	46	20	18	55	37	176	15	12	14	103	58	202
Aided	1924	31	8	34	57	54	184	15	17	58	181	105	376
do.	1925	29	11	28	65	56	189	17	15	39	189	112	372

The Teachers' Examinations for certificates were, as usual, held in August. The number of candidates and results are shown in the following table :

Class of Certificates	Number Examined			Number Passed		
	Men	Women	Total	Men	Women	Total
II Class ...	28	17	45	0	1	1
III Class ...	88	56	144	0	1	1
Monitors ...	364	285	649	12	14	26
	480	358	838	12	16	28

The total number of candidates was 789 and the total number of passes 172 for the previous year. Most of the candidates presented themselves for the examinations without adequate preparation.

First class Certificates (granted without examination) were issued to 2 female teachers.

IX.—LECTURES TO TEACHERS.

The Honourable Dr. T. B. Gilchrist, Director of the Medical and Health Department, delivered a course of Lectures on Hygiene to the Government and Aided Primary School Teachers. These lectures were attended by 714 teachers.

Lectures on Nature Study were delivered by Mr. E. F. S. Shepherd, of the Department of Agriculture, and attended by 28 teachers. An examination was held on the 21st November, 1925, and 28 Teachers sat for the examination, 12 of whom passed.

X.—TRAINING OF TEACHERS

At the beginning of the year there were 14 men and 7 women in training at the two Training Colleges, 19 students took the examination for Second Class Teachers' Certificates and 3 passed, 28 new students were admitted in October: 16 men and 12 women.

For practice in teaching students visit the neighbouring Government and Aided Schools, and for Criticism Lessons, classes are sent from these schools once a week.

XI.—FEMALE EDUCATION,

The number of Girls attending the Primary Schools is 10,206 an increase of 178 from last year.

The following Table shows the numbers for the last five years, an increase from 1921 of 15.5%.

1921	1922	1923	1924	1925
8,830	9,274	9,733	10,028	10,206

The needlework done in the Primary Schools is, on the whole, fairly satisfactory; and the "cutting out," which had been a weak point these last two years, shows a steady improvement.

XII.—MEETINGS OF THE SCHOOLS COMMITTEE.

There were two meetings of the Schools Committee on whose recommendation certain amendments to the Education Code were made, of which the following are the most important:

- the use of French or any other language as the medium of instruction and conversation up to Standard V inclusive;
- the award of scholarships, exhibitions, prizes &c., to successful pupils;
- the grant of 1st Class Teachers' Certificates, the holding of preliminary test examinations for Monitors' Certificates, and minor changes affecting the Teachers' and Monitors' Examinations;
- the revision of the schedules of studies for placing, as far as possible, all the pupils who join the Royal College from the Primary and Secondary Schools on the same footing:

XIII.—SECONDARY EDUCATION.

The number of Secondary Schools in the Colony in 1925 was 9—two of these being for boys only, while the others are Girls' Schools, with a small percentage of boys in the Preparatory and Junior Classes. The total number on Roll was 1,474 made up of 776 boys and 698 girls as compared with 751 boys and 662 girls in 1924.

These Schools were regularly visited during the year and Classes V, IV and III were examined orally and in writing in November. The weak subjects were Arithmetic and Geography.

The following tables shows the results of the December Examinations :

	Classes	No. Examined	No. Passed
Boys	II	99	15
"	I	74	7
Girls	II	61	27
"	I	64	16
"	B	39	19
"	A	25	15

Two scholarships tenable at the Royal College, on the results of the examination held in December, 1925, were awarded to the following boys in Class I:—

1o. Marc Pitot, and 2o. Yves Saint Jean, both of St. Joseph College, Curepipe.

The scholarship awarded to the girls in Class I was gained by Maud Herchenroder, of Loreto School, Quatre Bornes.

The scholarship for the entrance class, Royal College, which is open to all boys in the Colony, was awarded to a Royal College pupil, and the exhibition to a pupil of St. Joseph College, Curepipe.

The passes in Cambridge Local Examinations were as follows :

Junior	Boys	5	Girls	2
School Certificate	"	6	"	6

One of whom, Miss Marie Pitot, of Loreto School, Curepipe, obtained *Honours*, with distinction in English and French, and was placed *second* among the best school Certificate candidates including Royal College pupils.

XIV.—TECHNICAL AND COMMERCIAL.

The number of pupils attending the full-time section of Port Louis Technical School during 1925 was 54, a further progressive increase over preceding years, indicative of the increasing popularity of the school both with parents and pupils. The pupils of this section received instruction in English, French, Arithmetic and Elementary Mathematics, Free Hand Drawing, Mechanical Drawing and Practical Woodwork.

204 pupils from 12 of the Primary Schools of Port Louis attended four hours a week for instruction in Drawing and Woodwork. These continue to be well taught, many of the pupils acquire considerable manual dexterity.

The two Handicraft Apprenticeships awarded annually by Government were again won by pupils of the Port Louis Technical School.

The number of Engineering Apprentices from the Government Locomotive Works, Plaine Lauzun, attending during 1925 was 20. These attended 8 to 10 hours a week. They received instruction in Geometrical and Machine Construction and Drawing, Geometry and Mathematics, Mechanics and Steam. Some of these Apprentices show promise of being good draughtsmen and, through their knowledge of these subjects, will find, as many have found, avenues leading to positions of responsibility.

The work of the Port Louis Technical School during 1925 was not interrupted by any epidemic, and the attendance and discipline were good.

The number of pupils from the Primary Schools of Lower Plaines Wilhems District attending the Beau Bassin Industrial School during 1925 was 263. They received instruction 2 hours a week in Drawing and Woodwork similar to that given to the Primary Schoolboys in Port Louis Technical School. Owing to various contributory causes, the attendance and work were not quite up to the level of former years, but discipline was very good.

The chief Instructor of the Industrial School at Casis reports as follows on the working of the School :

"The number of boys on the roll on the 1st January, 1925 was 59, the number gradually increased, and there were 75 boys on the roll in the month of August, when it was decided that a foreman tinsmith should be employed and a few boys put to learn the work. The total number on the roll at the end of October was 80, the maximum which the school can contain.

"The school again exhibited at Réduit and obtained 'Hors Concours and Felicitations' of the jury, chiefly for concrete work ; some orders were booked and most of the articles at the exhibition were sold.

"The school has been fully employed during the year, and an order for 20 camions trailers for the Medical and Health Department was obtained. 10 of these were delivered before the 31st December, 1925.

The daily attendance has greatly improved since last year.

"The approximate amount earned during the year was Rs. 3,980."

5th April, 1926.

H. LALOUETTE,
Superintendent of Schools.

COLONY OF MAURITIUS

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ANNUAL REPORT
ON
PRIMARY EDUCATION, 1926



I.—ROLL AND ATTENDANCE

The number of Primary Schools in the Colony has this year increased by 2, bringing the total to 151—made up of 57 Government Schools, 65 Roman Catholic, 19 Church of England, 2 Church of Scotland, 5 Hindoo and 3 Mahomedan Aided Schools.

The average number of pupils on roll and in attendance during the year was 33,745 and 24,671 respectively, giving a percentage of attendances of 73.1; the figures for the previous year were 33,588—23,970—and 71.3 respectively.

The following is a statement showing the average number of pupils on roll and in attendance during the year, arranged according to districts:—

Districts	GOVERNMENT SCHOOLS						AIDED SCHOOLS					
	Roll		Attendance		Percentage of Attendance		Roll		Attendance		Percentage of Attendance	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Port Louis ...	1,585	819	1,110	716	70	87	2,557	1,945	2,101	1,524	82	78
Plaines Wilhems ...	2,093	929	1,518	678	72	73	3,918	2,275	2,832	1,585	72	70
Grand Port ...	1,879	623	1,420	491	75	79	878	502	579	359	66	71
Rivière du Rempart...	853	110	665	80	78	73	919	406	658	291	71	72
Pamplemousses ...	1,195	368	802	231	67	63	702	135	489	112	70	83
Flacq ...	1,097	374	773	246	70	66	1,870	490	1,330	328	71	67
Savanne ...	1,142	305	895	233	78	76	507	305	350	213	69	70
Moka ...	364	62	256	43	70	69	1,294	481	915	330	71	69
Black River ...	309	137	213	99	69	72	234	83	157	49	67	59

15,715 children are stated to be Roman Catholic, 540 Church of England, 428 Church of Scotland; while the number of Mahomedan children is 4,275, Hindoo 12,516 and other denominations 271.

The number of Indian children attending the Primary Schools during the year was 18,097, as against 18,174 in the previous year.

The following table shows the number of Indian children attending the Primary Schools during the last five years:—

1922		1923		1924		1925		1926	
Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
13,538	2,304	13,863	2,535	14,745	2,471	15,533	2,641	14,880	3,217

It will be noticed that the number of Indian girls attending the Primary Schools has been steadily increasing.

II.—EXAMINATIONS AND INSPECTORATE

The regular examination of the Schools began, as usual, in March.

The Inspectorate was strengthened by the appointment of Mr. M. A. Bancilhon, Assistant Master at the Royal College, as Chief Inspector of Schools on the 6th September, 1926; while Mr. G. Collendavello, Head Teacher of Souillac Government School, was appointed Inspector of Schools on the 1st December, 1926, consequent upon the retirement of Mr. L. X. Pouzet.

The following statement shows the percentage of passes in the different Standards for Government and Aided Schools arranged according to districts :—

Districts	GOVERNMENT SCHOOLS						AIDED SCHOOLS					
	Standards						Standards					
	I	II	III	IV	V	VI	I	II	III	IV	V	VI
Port Louis ...	93	89	76	50	50	77	92	93	76	58	59	63
Plaines Wilhems ...	92	85	75	64	69	71	94	91	79	72	57	78
Grand Port ...	91	89	82	73	41	76	96	93	76	64	67	68
Rivière du Rempart...	95	87	69	70	69	87	90	87	69	51	62	78
Pamplemousses ...	98	86	84	65	74	78	91	96	81	63	62	74
Flacq ...	94	88	73	65	65	78	92	91	82	65	54	65
Savanne ...	87	89	64	65	57	62	97	94	74	58	44	80
Moka ...	96	86	60	50	38	76	77	73	84	71	75	77
Black River ...	95	91	73	72	73	89	100	91	79	71	73	70

In optional subjects the percentage of passes in English, French and Geography for Government and Aided Schools is given below :—

Subjects	GOVERNMENT SCHOOLS				AIDED SCHOOLS			
	Standards				Standards			
	III	IV	V	VI	III	IV	V	VI
English ...	84	80	77	87	81	78	80	84
French ...	81	80	77	85	80	78	78	81
Geography ...	82	60	48	59	83	59	55	57

Standard VII was abolished at the beginning of the year, and a Senior Bursary Class for Boys established instead. The course of study in such class will extend over a period of two years, at the expiration of which four scholarships and four exhibitions entitling the holders thereof to free tuition at the Royal College, until the end of the year in which they are 20 years of age, will be awarded on the results of a competitive examination, the winners of a scholarship being entitled to money payments at the rate of Rs. 120 a year, in addition.

As a result of the Inspection visits paid to the Schools during the year, 150 schools were classed as "good," earning a grant of R. 1.50 per pupil in average attendance, and 1 as "fair" earning R. 0.75 per pupil.

III.—SCHOOL BUILDINGS

Thanks to the generosity of the Advisory Board of the Mauritius General Improvement and Development Fund, a sum of Rs. 115,000 has been contributed by that Fund towards the reconstruction of the following Government Schools, namely :—

- "Chemin Grenier" in the District of Savanne,
- "L'Escalier" and "Mare d'Albert" in the District of Grand Port,
- "Grand River South East" in the District of Flacq.

Provision has also been made from the General Revenue of the Colony for the reconstruction of "Beau Bassin (Boys)" and "Chamarel" Government Schools in the districts of Plaines Wilhems and Black River respectively.

The work is proceeding satisfactorily.

On re-assessment, the Maintenance Grants to three Aided Schools have been increased

IV.—SCHOOL GARDENS

These gardens are under the charge of the Department of Agriculture and are inspected regularly by the Chief Agricultural Officer of that Department and his Assistants, who give the necessary assistance to the Teachers. There are at present 21 school gardens in the Colony, in most of which satisfactory progress has been made.

As in previous years the Department of Agriculture supplied seeds, plants, tools, fencing materials and manure for these gardens.

Money prizes for the best kept gardens were awarded as follows :—

1st Prize—Rs. 50—	Plaisance Orphanage C.E. Aided School
2nd do.	40—Highlands C.E. Aided School
3rd do.	35—Old Grand Port R.C. Aided School
4th do.	30—Riv. des Anguilles Government School
5th do.	25—Palma C.E. Aided School
6th do.	20—Quatre Bornes Government School

At the Agricultural Show held at Line Barracks, Port Louis, in the month of October, prizes were awarded as follows :—

Silver Medals

Quatre Bornes Government School
Palma C.E. Aided School
Plaisance C.E. Aided School

Bronze Medals

Highlands C.E. Aided School
Old Grand Port R.C. Aided School

V.—HYGIENE, NATURE STUDY, &c.

Regular instruction in Hygiene and Nature Study was given in all the schools, and quinine was distributed on a liberal scale throughout the year among the schools lying in unhealthy localities.

An extensive campaign against Tuberculosis has been undertaken by the Medical and Health Department, and arrangements have now been made with the Tuberculosis Officer for lectures illustrated by lantern slides to be delivered by him in all the schools of the Colony.

Pictorial newspapers for children were freely circulated among, and greatly appreciated by the Schools throughout the year.

VI.—PHYSICAL DRILL

With the number of qualified Instructors available, Drill was taught to the boys in nearly all the Schools throughout the year.

Arrangements have now been for holding Drill Classes at the Training School once a week and, as these classes are attended by women students-in-training, it is expected that the girls in Primary Schools will also be able to receive instruction in this important subject in the near future.

VII.—SCHOLARSHIPS, &c.

325 candidates sat for the Boys Scholarship Examination, as against 283 in the previous year. 175 boys failed to pass the preliminary test, and 32 passed the final examination as against 43 in 1925. The schools gaining scholarships and exhibitions tenable at the Royal College are given below :—

Schools	Scholarships	Exhibitions
1. St. Enfant Jésus R.C.A. School	2	4
2. Pamplemousses Road R.C.A. School	1	...
3. de la Salle R.C.A. School	1	...
4. Rose Hill Government School	1	...
5. Aryan Vedic Aided School	1	...
6. Souillac Government School	...	1
7. Mare d'Albert Government School	...	1

For the four scholarships awarded to girls 174 candidates entered and 12 passed the examination, as against 155 and 20 respectively in the previous year.

The schools gaining scholarships were :—

Curepipe Girls Government School	3
Beau Bassin Girls Government School	1

For Handicraft Apprenticeships there were 21 candidates and 2 were appointed, both from Technical School, Port Louis.

For Apprenticeships in Mechanical Engineering 18 candidates competed and 8 were appointed.

For Horticultural Apprenticeships 69 candidates entered and 4 were appointed.

There was no candidate for Civil Engineering Studentships.

For Needlework Apprenticeships there were 25 competitors and 4 were appointed by the Ladies Needlework Committee, as under :—

2 from Stanley Road R.C. Aided School
2 from Pamplemousses Road Government School.

There was an appreciable increase in the number of candidates for the Handicraft, Horticultural and Needlework Apprenticeships, and it was possible this year to award the full number of Apprenticeships in Mechanical Engineering provided by the Regulations, namely 8, as against 5 in the previous year.

VIII.—TEACHERS

The total number of Teachers in the Primary Schools in 1926 was 390 in Government Schools and 598 in Aided Schools.

The following table shows the number of men and women separately arranged according to the certificates held :—

Schools	Year	Men						Women					
		I	II	III	Certificated Monitors	VI Standard Certificates	Total	I	II	III	Certificated Monitors	VI Standard Certificates	Total
Government ...	1925	46	20	18	55	37	176	15	12	14	103	58	202
do. ...	1926	44	22	18	84	18	186	15	14	14	128	33	204
Aided ...	1925	29	11	28	65	56	189	17	15	39	189	112	372
do. ...	1926	33	8	33	89	57	220	18	14	40	227	79	378

The Teachers' Examinations for certificates were, as usual, held in August. The number of candidates and results are shown in the following table :—

Class of Certificates	Number examined			Number passed			
	Men	Women	Total	Men	Women	Total	
II Class	29	14	43	1	...	1
III Class	114	55	169	2	2	4
Monitors	463	389	852	12	2	14
Total	606	458	1,064	15	4	19

The total number of candidates was 838 and the total number of passes 28 in 1925. As in the previous year, most of the candidates presented themselves for the examinations without adequate preparation, and it is hoped that the re-organisation of the Training School referred to in Section X will bring about better results in due course.

First Class Certificates (granted without examination) were issued to 3 male Teachers.

IX.—ABOLITION OF EXAMINATION RESULT GRANT SYSTEM, AND REVISION OF SALARIES OF PRIMARY SCHOOL TEACHERS

The antiquated system whereby Primary School Teachers were paid, monthly, a paltry fixed salary which was supplemented, at the end of the school year, by a lump sum varying according to the results of the annual examinations has now been done away with. Needlework grants have, however, been maintained and, in the case of State-Aided Schools, Inspection grants also.

Up to to the 30th April, 1926, Teachers and Monitors were paid fixed salaries according to the following scale :—

Monitors		Teachers		
VI Standard Certificate Rs. (p.a.)	Monitor's Certificate Rs. (p.a.)	Class III Rs. (p.a.)	Class II Rs. (p.a.)	Class I Rs. (p.a.)
Men 300	480	720	900—60—1,500	1,560—60—2,160
Women 300	480	600	720—60—1,320	1,380—60—1,980

From the 1st May, 1926, fixed salaries have been paid on the following scale :—

Probationers Rs. (p.a.)	Monitors Rs. (p.a.)	Teachers		
		Class III Rs. (p.a.)	Class II Rs. (p.a.)	Class I Rs. (p.a.)
Men 300	480—60—600	780—60—900	1,140—60—1,740	1,800—120—3,000
Women 300	480—60—600	660—60—780	960—60—1,560	1,620—120—2,820

X.—TRAINING OF TEACHERS

At the beginning of the year there were 15 men and 12 women students at the two Training Schools, and 18 new students were admitted in October—8 men and 10 women.

The Men's and Women's Training Schools have now been combined under one Principal with one Male and one Female Assistant, thus increasing the staff in regard to number and efficiency.

Provision has been made for special courses of training for Certificated Teachers and Monitors already employed in Government and Aided Schools in addition to the regular students-in-training, and the rates of pay have been raised so as to attract suitable candidates.

XI.—FEMALE EDUCATION

The number of Girls attending the Primary Schools was 10,349, an increase of 143 from last year.

The following Table shows the numbers for the last five years, an increase from 1922 of 11.6% :—

1922	1923	1924	1925	1926
9,274	9,733	10,028	10,206	10,349

The improvement achieved in Needlework, especially in the "cutting out," was firmly maintained; and, in this connection, it should be noted that, at the Agricultural Show held at Line Barracks, Port Louis, in the month of October, prizes were awarded as follows :—

Silver Medals

Stanley Road Boman Catholic Aided School.
Pamplemousses Road Roman Catholic Aided School.

Bronze Medal

Pamplemousses Road Government School.

Money Prizes

Terre Rouge Government School (Rs. 10).
Miss V. Marie Furlong, of Curepipe Girls Government School (Rs. 5).
Miss May Furlong, do. do. (Rs. 5).

XII.—MEETINGS OF THE SCHOOLS COMMITTEE

There were 9 meetings of the Schools Committee, on whose recommendation certain amendments to the Education Code were made, providing *inter alia* for :—

- (a) the abolition of Standard VII and the establishment of a Senior Bursary Class in its stead, with the creation of four Senior Scholarships and four Senior Exhibitions tenable at the Royal College;
- (b) the abolition of the examination result grant system, and the revision of the salaries of Primary School Teachers;
- (c) the reorganization of the Government Training School;
- (d) the transfer of pupils from one Government or Aided Primary School to another;
- (e) the increase in the number of Primary School Scholarships for Girls;
- (f) the expulsion and rustication of pupils for serious misconduct; and
- (g) the staffing of Primary Schools.

XIII.—SECONDARY EDUCATION

The number of Aided Secondary Schools in the Colony in 1926 was 9—two of these being for boys only, while the others are Girls' Schools, with a small percentage of boys in the Preparatory and Junior Classes. The total number on roll was 1,316 made up of 689 boys and 627 girls, as compared with 776 boys and 698 girls in 1925.

The lower forms were examined with satisfactory results in all subjects except Arithmetic.

The following table shows the results of the December Examinations :—

	Classes	No. Examined	No. Passed
Boys	II	90	21
"	I	61	8
Girls	II	67	35
"	I	75	47
"	B	47	26
"	A	22	12

Two Scholarships tenable at the Royal College on the results of the Examination held in December, 1926, were awarded to the following boys in Class I:—

(1) Edouard Cochaux, and (2) Serge Staub, both of St. Joseph College, Curepipe.

The Scholarship awarded to the girls in Class I was gained by Madeleine Desplace, of Loreto School Curepipe.

The passes in Cambridge Local Examinations were as follows:—

Junior	Boys 11	Girls 6
School Certificate	„ 5	„ 11

XIV.—TECHNICAL INSTRUCTION

Technical Instruction is provided in three Centres, viz:—(1) The Technical School, Port Louis; (2) The Industrial School, Bell Village; and (3) the Industrial School, Beau Bassin.

(1) *Technical School Port Louis*

There are on roll at the Technical School, Port Louis, 40 full-time day boys of an average age of 16½ years. These devote nearly half their time to the technical work of Mechanical Drawing and Woodwork, in which a high and efficient standard prevails.

Twelve of the Primary Schools in Port Louis take advantage of the instruction offered in the Technical School in Mechanical Drawing and Manual Instruction in Woodwork, and send about 200 boys of an average age of 13 years twice a week for periods of two hours each time. The attendance and discipline are good.

Sixteen Apprentices from Plaine Lauzun Locomotive Works attended eight hours a week for instruction in the theoretical subjects of Geometry, Machine and Mechanical Drawing, Mechanics and Mathematics. These classes continue to do good work in supplying skilled artisans qualified to hold positions of responsibility.

The Handicraft Apprenticeships have perhaps afforded the best example of their utility last year. The two Apprentices who finished their course in December are first class workmen and had no difficulty in finding posts. The two Apprenticeships thus vacated have again been won by pupils of this school.

(2) *Industrial School, Bell Village*

At the Bell Village Industrial School, the average number of Apprentices on roll was 85, divided as follows:—Carpenters 40, Masons 14, Blacksmiths 17, Tinsmiths 14. This number was found to be too large for the present staff and conducive neither to good work nor to good discipline. No boy is expected to remain longer than three years nor after attaining 19 years of age. Those in excess of these limits have been assisted to posts outside, and by admitting very few new boys a more manageable number has been reached.

A large quantity of tools have been ordered from England, much has been done to improve the benches and local equipment, and in many other respects further improvement is expected in the near future.

(3) *Industrial School, Beau Bassin*

Eight Primary Schools from Lower Plaines Wilhems send 160 boys for instruction at the Beau Bassin Industrial School two hours a week and there has been a great improvement in the work done there, although the attendance was not so good as might have been expected.

4th June, 1927.

H. LALOUETTE,
Superintendent of Schools.

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COLONY OF MAURITIUS

REPORT

ON THE

IMMIGRATION DEPARTMENT FOR 1924

Immigration Office,
7th July, 1925.

THE HONOURABLE THE COLONIAL SECRETARY,

I have the honour to submit, for the information of His Excellency the Governor, the following report on the Immigration Department for the year 1924.

I.—Immigration

The Emigration Commissioner was engaged during the first half of the year under review in controlling and carrying out Emigration operations for this Colony.

Four Steamers arrived at Mauritius with immigrants from Calcutta during the year 1924; the last the "Surada" arrived on the 18.6.24. From that date no more immigrants were received for the reason that the licence granted by the Government of India for recruiting emigrants for this Colony had expired on the 14th May 1924.

The number of immigrants and their dependents introduced during the year is 836 as shown in the following table:—

Date of arrival	Name of Vessel	Number of Immigrants				Infant		Sons
		Men	Women	Boys	Girls	Boys	Girls	
16.1.24 ...	S/S Janus ...	220	46	30	15	2	2	315
14.3.24 ...	S/S Janus ...	86	67	23	20	4	4	204
19.5.24 ...	S/S Janus ...	56	55	27	25	...	...	163
18.6.24 ..	S/S Surada ...	52	52	34	16	...	...	154
Total ...	...	414	220	111	76	6	6	836

This figure added to the 559 Immigrants received last year bring the total number of New Immigrants introduced under the licence to 1395.

The immigrants were, on the arrival of each vessel, sent to Cannoniars Point Quarantine Station and there kept under observation and for purposes of disinfection.

Of the 414 male adults introduced one man named Jhagroo died during his detention at Cannoniars Point; the remaining 413 were allotted to the Government Departments and Sugar Estates in the following proportion:—

Medical and Health Department	-	-	64	sweepers
Railway	do.	-	56	labourers
Public Works	do.	-	5	bricklayers
do.	do.	-	42	labourers
Unité Estate	-	-	18	"
Union Vale Estate	-	-	18	"
Rose Relle	do.	-	10	"
Beau Séjour	do.	-	6	"
Queen Victoria	do.	-	10	"
Deep River	do.	-	9	"
Britannia	do.	-	9	"
Belle Vue Harel	do.	-	10	"
Sauveterre and Colmar Estates	-	-	16	"
Le Val Estate	-	-	10	"
Trianon	do.	-	10	"
Beau Plan	do.	-	15	"
Constance Manès	do.	-	8	"
Beau Vallon	do.	-	11	"
St. Félix	do.	-	8	"
Sans Souci	do.	-	6	"
St. Hubert	do.	-	16	"
Labourdonnais	do.	-	10	"
Eau Bleue	do.	-	8	"
Deux Bras	do.	-	8	"
Bel Air St. Félix	do.	-	7	"
Bel Ombre	do.	-	8	"
Etoile	do.	-	8	"
Médine	do.	-	7	"

Total - - 413

II.—Emigration.

One Steamer the "Dalgoma" was chartered by Government for the repatriation of return immigrants and their families.

The Steamer also took back Indians who wished to return to their native land at their own expense.

The "Dalgoma" left on the 22nd December with 513 souls 262 for Madras and 251 for Calcutta, under the Medical supervision of the Honourable Doctor Sakir.

They are classified in the following tables:—

Immigrants Embarked for Madras.

	Men	Women	Boys	Girls	Infant		Souls
					Boys	Girls	
At their own expense— Immigrants	6	...	...	..	...	...	6
At Government expense— Immigrants	130	44	...	...	...	...	174
Indo-Mauritians	17	27	23	12	2	1	82
Total	153	71	23	12	2	1	262

Immigrants embarked for Calcutta.

	Men	Women	Boys	Girls	Infant		Souls
					Boys	Girls	
At their own expense— Immigrants	21	2	...	...	...	...	23
Indo-Mauritians	...	1	...	...	...	...	1
At Government expense— Immigrants	116	54	17	8	1	...	196
Passengers	1	...	...	...	...	...	1
Indo-Mauritians	3	9	6	9	...	3	30
Total	141	66	23	17	1	3	251

Of the 116 immigrants who left for Calcutta with their dependents, 46 were new Immigrants who had been medically certified to be unfit for work.

The savings carried away by the return immigrants amounted to Rs. 5,549.75 of which Rs. 443 belonged to the new Immigrants. 13 return Immigrants were granted a monthly pension of Rs. 5 each payable in India until their death.

III.—Statistics of Indian Population.

The total Indian Population was on the 31st December 1924, 270,958 souls composed of 141,622 males and 129,336 females; of that number 17,744 were old Immigrants and 1,261 new Immigrants.

The Indian population may be classified as follows:—

	1922	1923	1924
On Estates	56,351	8,239	45,505
Off Estates	208,377	219,121	225,453
	264,728	267,360	270,958

The Estate population may be classified as follows—

Men	18,250
Women	12,195
Children	15,060

The ratio of females to males of the total Indian population was:—
1922: 89 to 100; 1923: 91 to 100; 1924: 91 to 100.

The death rates of the Indian population on and off Estates were:—

Year	Death rate on Estates	Death rate off Estates
1923	22.90	28.89
1924	22.96	28.22

IV.—Vital Statistics

Details of Vital Statistics are given in annexure A which has been compiled from figures supplied by estates employing more than 20 servants under verbal contract of service.

V.—Work and Wages

The usual statement of earnings is attached (Annexure B) showing the amount deducted by reason of illegal absence, leave or sickness.

According to the returns furnished the daily average number of labourers, employed by the month, at work during 1924 was 18,936 and the average earnings of the whole body of labourers amounted to Rs. 17.07 allowing for absence for illness and other causes.

The percentage of working days on which labourers attended was 83.07 or about 249½ days. Of the remainder 11.93 or about 35½ days were lost by absence without leave; .55 or 1½ day by absence with leave and 4.45 or 13½ days by sickness.

The proportion of daily absences of labourers is thus 16.93 which on an average population of 18,936 labourers gives 3,206 absences each day.

The above statistics deal only with labourers employed by the month and residing on the estates. The number of labourers working on estates and paid by the day as compared with the whole body of estate labourers stand in the ratio of 1 to 3. The information to hand shows that the average daily wage of a day labourer varied between R. 1.50 and Rs. 2. Steps are being taken to tax the well known obligingness of the Estate Managers with the filling in of half yearly returns which will enable this Department to give next year more complete and reliable statistics of the number of labourers employed on estates, whether paid by the month, by the day or by the job as well as the average daily wage earned during the year by each man, woman and child employed.

VI.—Inspection of Estates

101 Estates were visited by the Inspector of Immigrants during the year 1924 as against 128 in 1923.

That reduced number is due to 27 of those estates having stopped employing servants under verbal contract thus falling out of the control of this Department.

Of the 101 Estates 51 were with Factory and 66 with hospital.

The various camps, labourers' dwellings, hospitals, latrine appliances and the protection of the sources from which drinking water is supplied have been inspected by the Protector of Immigrants on the undermentioned estates during the year under review:—

In Grand Port District.—Beau Vallon, Eau Bleue, Deux Bras, Ferney, Gros Bois, La Baraque, Le Val, Le Vallon, Mon Desert, Plaisance, Riche en Eau, Rose Belle, Savinia, St. Hubert, St. Magdalena, Union Park, Union Vale, Sauveterre and Virginia,

In Savanne District.—Bel Air, Bel Ombre, Benarès, Britannia, L'Union, Fontenelle, Riche Bois, Rivière des Anguilles, St. Aubin, St. Felix and Savannah.

Several suggestions were made by him and in nearly all cases they received the early attention of the Managers.

I desire here to express my appreciation of the willing and intelligent co-operation received from the Owners and Managers of Estates in the carrying out of all measures suggested to improve the health and welfare of their resident servants.

The Estates provided with a hospital were also visited by the Sanitary Wardens of the Medical and Health Department performing the duties of Medical Inspectors to the Immigration Department.

VII.—Estate Hospitals

There were 66 estate hospitals in 1924 as compared with 69 in 1923. The hospitals of St. Avold, Mare Sèche and Tamarin Estates having been closed during the year.

Arrangements have been made by St. Avold to send her sick servants to Britannia Estate Hospital which belongs to the same Owner, the Anglo Ceylon and General Estates Cy.

Mare Sèche employs only day labourers, Tamarin has less than 20 servants under verbal contract.

These 66 estate hospitals were under the care of Medical Practitioners in the following proportion:—

Name of Medical Practitioner	Number of Hospitals
1. F. Tennant	14
2. L. du Vergé	14
3. O. Guérin	6
4. P. S. Chauvin	5
5. A. Bourgault	9
6. H. Dardenne	9
7. Ed. Harel	6
8. Rog. Chevreau	3
	—
	66
	—

VIII.—Midwives

There were 15 midwives employed on the Estates during the year 1924; 5 at the entire cost of the Estates employing them and which are as follows:—

Beau Champ, Beau Séjour, Bel Air and St. Félix, Rich Fund, St. Antoine.

The remaining 10 who receive a remuneration of Rs. 240 per annum from the Dr. de Chazal Fund to attend the poor were stationed on the following Estates:—

Rose Belle, Britannia, St. Aubin, Savannah, Mon Désert (Moka), Saus Souci, Trianon, Highlands, Mon Loisir and Le Vallon.

They attended during the year 164 midwifery cases and only 11 still births were recorded.

IX.—Suicides

There were 17 cases of suicides among the Indian population during 1924 as against 22 in 1923.

They were ascribed to the following causes:—

	Males	Females	Total
Ill-health ...	7	3	10
Domestic troubles ...	...	3	3
Insanity ..	1	...	1
Loss of relatives ...	2	1	3
	10	7	17

Two of the above cases occurred among old Immigrants one of whom was a day labourer.

X.—Crimes and Offences

(1) *Serious crimes.*—Six Indian offenders were convicted before the Assize Court in 1924 as against 14 in 1923, on the following charges:

Statement of Indian Offenders convicted before the Court of Assizes during the Year 1924.

Number of Indian offenders convicted	Crime they have been found guilty of	Sentence
One	Wounds and blows causing death without intention to kill	3 days imprisonment
One	Simple wounds and blows	One year imprisonment with hard labour
Two	Manslaughter	10 years penal servitude each
One	Wounds and blows causing death	6 months imprisonment with hard labour
One	Wounds and blows causing death without intention to kill inflicted without premeditation and under provocation.	4 weeks imprisonment with hard labour

(2) *Charges brought by the Police against employers or their employes for assault on their labourers.*—There were 4 cases of assault upon labourers during 1924, in 3 cases the Offenders were fined Rs. 15, Rs. 50 and Rs. 25 respectively, in the 4th case the Offender was sentenced to 15 days hard labour

(3) *Complaints.*—409 complaints were received at the Immigration Office during the year 1924 as follows:—

59 for insufficiency of wages and rations, 37 for rations of inferior quality, 51 for excessive task work, 28 for detention of tickets, 26 for assault, 27 for inadequate medical care, 43 for non-payment of wages, 21 for non acceptance of resignation tendered, 3 for illegal cutting of wages, 26 for having been made to stop work without having been given 14 days notice, 3 for threats, 14 for illegal cutting of rations, 11 for ill-treatment, 7 for detention of effects, 11 for abusive language, 15 for non payment of extra wages, 13 for short payment of wages, 2 for unsuitable quarters, 1 for having been arrested on a false charge of blows.

8 collective complaints were made by the new immigrants: 1 for non receipt of blankets 3 for insufficient pay, 1 for excessive task work, 1 for abusive language, 1 for non receipt of rations, 1 for detention of wages.

Most of the complaints were found to be frivolous, especially those made by the new immigrants. In cases which were genuine this Department interfered in favour of the complainants and caused them to obtain satisfaction from their employers.

XI.—Strikes

The New Immigrants employed in the Government Night Soil Service at Curepipe twice went on Strike for one or two days to sympathise with one or two of their friends who had been firmly but justly dealt with for deliberate breach of discipline.

The Protector was called in. He explained to the men their duties and obligations under the law and guarded them against the penalty which they were incurring by contravening the law. On the two occasions his advice to resume work at once was readily received.

The Protector was also called on three estates on which the New Immigrants employed were refusing to work. After some parleying which did away with the misapprehension which existed between the employers and their servants the latter went back to their work.

XII.—Administration of the Immigration Department

Mr. Léon Kœnig, Assistant Colonial Secretary, continued to act as Protector of Immigrants until the 7.2.24 when he went on leave of absence and was replaced by Mr. Lionel Collet, Assistant Receiver General.

Mr. L. Besson continued to perform the duties of Inspector of Immigrants in addition to those of Manager of Barkly Asylum and did excellent work in that connection.

Mr. I. Rajabally, who was on leave of absence, resumed his duties of Chief Clerk of the Department on the 12.9.24.

I avail myself of this opportunity to record here my appreciation of the very good work performed by the Immigration Staff and of the valuable assistance I received from them during the year under review.

With the re-opening of Immigration, heavy additional work had been thrown upon the Department and the existing Staff had to cope with the increased work by putting in extra hours and although they had very often to attend at 7 a.m. and leave late at night and to work on Sundays and Public Holidays, I have much pleasure to say that they did their duty cheerfully.

Their goodwill in the circumstances enabled the work of the Department to be carried out in a satisfactory manner at no extra cost.

XIII.—New Legislation

The Labour Law, Ordinance, No. 12 of 1922, was amended by Ordinance No. 11 of 1924 as regards the fees payable to Estate Medical Attendants.

The following proviso was added to the first paragraph of Article 122 of the Labour Ordinance :—“ Provided that the remuneration to be received shall in no case be less than Rs. 150 per month in respect of any estate with a hospital and a sugar Factory and Rs. 75 a month in respect of any estate with a hospital but without a factory.”

XIV.—Cost of Immigration

The amount to the credit of the Immigration Fund provided under Article 6 of Ordinance No. 32 of 1922 for the recruitment and introduction of New Immigrants was on the 1.1.24 Rs. 231,356.14. The receipts during the year 1924 amounted to Rs. 37,444.95 and the disbursements to Rs. 58,387.17 leaving on the 31.12.24 a balance of Rs. 210,413.92.

XV.—Administration of Estates of Deceased Immigrants

The Curator of Vacant Estates was vested with 19 estates of deceased immigrants during 1924 representing a value of Rs. 2,783.67 in cash and Rs. 3,205 as the approximate value of immoveable properties taken charge of or a total of Rs. 5,988.67.

The Protector who is by law the guardian ex-officio of all immigrants who are minors and orphans of Immigrants had under his administration the property of minors of the aggregate value of Rs. 22,685.92 as follows.—

Amount deposited in the Government Savings Bank	...	Rs. 15,865.92
Value of landed property or other assets	...	6,820.00
Total	...	<u>22,685.92</u>

XVI.—Destitute Indians

Relief was granted to destitute persons of Indian extraction during the year 1924 as follows :—

Outdoor relief in Cash	{ (i) in India	-	-	-	-	-	32
	{ (ii) in Mauritius	-	-	-	-	-	473
Institutional relief in Mauritius	-	-	-	-	-	-	350

The above figures show that 823 persons of Indian origin were in receipt of poor relief in Mauritius during 1924.

The Indian population on 31st December 1924 was 270,958 souls so that destitution among Indians was prevalent to the extent of only 3.03 per 1000 against 16.09 per 1000 among the non Indian population estimated at 116,785 souls.

XVII.—Settlement of Free Indians

The total area of land cultivated by Indians on the 31st December 1924 was 89,000 arpents or 43.9% of the total area under cultivation and 44.2% of the total area under sugar cane as shown below :—

Year	Land under cultivation			Planted in Sugar Canes		
	Total area under cultivation	Area cultivated by Indians	%	Total area in sugar canes	Area cultivated by Indians	%
1920 ...	208,900	92,000	44.0	179,240	80,200	44.7
1921 ...	213,000	90,000	42.2	179,780	82,420	45.8
1922 ...	213,000	90,000	42.2	178,000	83,000	46.6
1923 ...	205,627	92,000	44.7	171,227	76,800	44.8
1924 ...	202,465	89,000	43.9	167,165	73,970	44.2

XVIII.—Savings

The number of Indians holding deposits in the Government Savings Bank in 1924 was 15,730 and the total Balance to their credit Rs. 2,687,010.38

In 1923 the Indian Population had 14,356 accounts at the Government Savings Bank with a total balance of Rs. 2,700,479.22.

Remittances.

The remittances to India through the Post Office amounted to Rs. 937,118.3 annas in 1924.

Investments.

The total value of real property acquired by old immigrants in 1924 was estimated at Rs. 377,138 and the value of sales at Rs. 223,286.

The estimated net value of immoveable properties purchased by other Indians (exclusive of Immigrants) exceeded the value of sales by Rs. 2,032,678.

Moveable Property.

The Immigrants and other Indians continue to hold the largest number of draft animals, carts and carriages for carrying trade by roads and likewise the largest number of milch cows and goats.

Many are now owners of motor cars, buses and lorries.

XIX.—Education

The number of Indian children who attended the Primary Schools during 1924 was 17,170 as against 16,398 in 1923.

That number is exclusive of those attending the vernacular and other half-time schools not in receipt of Government grants.

XX.—Political Status of Indians

The Indian community possesses the same political rights as the members of the General Population. In 1924 there were 1995 Indian electors admitted to vote for elections to the Council of Government out of a total of 8249 on a Common electoral Roll.

XXI.—General Remarks

According to the terms of the pamphlet printed in the Indian dialects a copy of which was given to each of the Immigrants recruited in India, the rates of wages offered to these men varied from R. 1 to R. 1.25 per day. On Sugar Estates those working by the month were given the option of receiving part of their wages in rations consisting of rice, dhol, oil and salt and were further entitled to free lodging and medical care. Those working on Government works were entitled to free lodging and medical care. Repatriation was also promised as of right to every immigrant after a residence of two years in the colony and sooner (a) if he fell ill and was found unfit for work (b) if he was unable to earn wages which would provide for the cost of living of a man, his wife and three children leaving a sufficient margin of savings for sickness, old age and other causes (c) if he found the work unsuitable for him.

2. The larger number of Immigrants received from India during the period covered by the licence consisted generally of individuals born not in India but in the Colonies. They were accustomed to more healthy climate than that of India and to more expensive habits than natives of India. They had gone to India to see the country or to accompany their parents on a visit to their relatives and their idea was to return to these colonies but having spent all their savings they could not afford to pay their passage back and had to remain in India and earn their living there under adverse circumstances.

As soon as they were offered employment under the liberal conditions mentioned above they willingly accepted to come to Mauritius. They thought they would find in this Colony conditions almost on a level with those to which they had been accustomed

3. These Immigrants were free and could, if they choose, enter into engagement for periods not exceeding one month's duration and they could resign their employment after giving notice of their intention to quit 14 days before the end of the month.

4. On Sugar Estates these Immigrants were put to field work i.e. preparation of the soil, planting the cane tops, cleaning and weeding, harvesting and also to factory labour.

5. During the first months following their landing great concessions were made to them by their employers to help them to get used to the work, but in spite of all the facilities given they roamed from one estate to another and from estates to Government works and from Government works back to estates on the ground that they could not perform the work allotted. They soon became homesick and as such could not work the whole month to earn sufficiently for their maintenance and were very near becoming an easy prey to discouragement.

6. However as the crop season was drawing near during which the earnings of labourers on estates are much higher than in the "entre coupe," I advised them to try some efforts hoping that the increased earnings and overtime pay would brighten their minds. My hope was realized but unfortunately, as soon as the crop season was over, the rates of wages, owing to the fall in the price of sugar, went down while the retail price of rice was on the increase. This fact led some sixty of these Immigrants to give up work and to come to me applying for repatriation on the ground that they were unable to perform the amount of field work given to them, and consequently could not earn sufficiently for their maintenance and that of their family. I considered their request and after trying persuasion and finding that all my efforts were unsuccessful and that they persisted in their claim for passages back to India I agreed to repatriate them. They were admitted to the depot and the year closed on an influx of similar applications.

LIONEL COLLET,
Ag. Protector of Immigrants.

ANNEXURE A.

The births, still-births, deaths, causes of deaths and infantile mortality among the Estate population were as under:—

DISTRICT	ESTATE POPULATION					BIRTHS					DEATHS		CAUSES OF DEATHS															INFANTILE MORTALITY			
	Men	women	Boys	Girls	Total	Live	Still	Birth-rate per 1,000 of population	Birth rate per 100 of women	Proportion of still-births to live births	Number of deaths	Rate per 1,000	Malaria	Pneumonia	Bronchitis	Influenza	Tuberculosis	Diarrhoea	Dysentery	Epilepsy	Typhoid fever	Plague	Ankylostomiasis	Beri-beri	Child-birth	Infantile debility	Accident	Other causes	Infants under one year	Infants from one year and under five years	
Port Louis ...	419	225	92	90	826	12	...	14.52	5.32	...	22	25.63	1	4	1	5	2	2	7	3	..
Pamplemousses	1,131	727	548	445	2,851	83	12	29.11	11.40	14.4	77	27.00	10	7	1	3	10	7	3	1	1	3	..	31	7	9
Riv. du Rempart	1,866	1,574	1,040	1,021	5,501	124	26	22.51	7.84	20.9	115	21.45	5	27	7	6	14	1	6	4	1	11	..	30	22	12
Flacq ...	2,475	1,839	1,107	1,049	6,470	148	26	22.87	7.61	10.81	138	21.32	20	25	15	8	11	2	4	1	...	...	...	...	...	5	...	47	27	14
Grand Port	4,036	2,694	1,418	1,459	9,607	224	40	23.31	8.31	17.85	248	25.81	30	47	7	7	26	7	9	9	...	...	4	...	5	7	3	87	45	25
Savanne ...	4,338	2,622	1,878	1,722	10,560	335	51	31.72	12.77	15.22	274	26.13	26	38	5	10	29	5	12	6	1	...	9	1	7	22	1	101	50	18	
Plaines Wilhems	1,131	572	394	373	2,520	100	9	39.68	17.48	9.00	55	21.82	3	4	1	2	10	...	...	1	...	7	1	...	...	3	...	23	11	8
Black River ...	117	94	56	75	342	5	...	14.62	5.32	...	12	35.09	2	1	1	...	3	1	1	...	...	...	...	...	...	...	...	3	1	...
Moka ...	2,687	1,848	1,191	1,102	6,828	187	21	27.38	10.12	11.23	104	15.23	8	18	6	8	14	5	2	2	...	...	3	...	1	5	...	37	16	12
Total ...	18,250	12,195	7,724	7,336	45,505	1,218	185	26.76	15.17	15.18	1,045	22.96	105	167	43	39	121	26	36	23	2	12	21	1	15	58	6	366	182	98	

The Crude death-rate among Indians (Immigrants and others) working and residing on Estates and of the total population compares as follows:—

District	Death rate per 1000 on Estates	Death rate per 1000 in total Population	District	Death rate per 1000 on Estates	Death rate per 1000 in total Population
Port Louis	26.6	34.6	Savanne ...	26.1	24.8
Pamplemousses	27.0	30.5	Black River	35.0	20.6
Riv. du Rempart	31.4	26.8	Plaines Wilhems...	21.8	24.3
Flacq ...	21.3	28.1	Moka ...	15.2	33.5
Grand Port	25.8	31.0			
			Average for the 9 districts	22.9	27.7

ANNEXURE B

1924—AVERAGE EARNINGS—Men

DISTRICT AND ESTATE	NAME OF OWNER	Mean number of labourers employed	Percentage of working days				Average monthly earnings	
			Worked by each	Lost by each			Actually earned	Possible earnings
				Unlawful absence	Absence with leave	Sickness		
PORT LOUIS								
Albion Dock	The Albion Dock Cy.	222	91.00	7.01	.04	1.95	20.94	27.40
New Mauritius Dock	The New Mauritius Dock Cy.	209	87.69	9.24	.38	2.69	22.68	25.62
P. Louis Sanitary Service	The Medical and Health Department	55	77.41	22.18	...	.41	32.37	41.82
Mean for Port Louis District		486	85.99	12.81	.12	1.68	26.66	31.61
PAMPLEMOUSSES								
Beau Plan	The Beau Plan Sugar Estate Cy.	167	81.58	14.00	.18	4.24	19.80	24.27
Belle Vue Mauricia	Messrs. Harel Brothers	167	78.67	19.20	.21	1.92	11.12	14.13
Bois Rouge	The Bois Rouge S.E. Cy.	84	89.20	9.68	...	1.14	17.52	19.64
Mon Rocher	Messrs Harel Brothers	31	85.16	13.46	.61	.77	23.66	27.78
Bon Air	The Bon Air S.E. Cy.	94	86.41	8.72	.82	4.05	12.39	14.38
Grande Rosalie	The Mauritius Sugar Estates Cy. Ltd.	225	84.61	12.92	.14	2.33	13.94	16.47
Solitude	The Solitude S.E. Cy.	145	86.86	12.72	.07	.85	16.60	19.18
St. André	The St. André S.E. Cy.	20	90.49	5.24	.06	4.21	18.86	20.83
The Mount and Rosalie Constance	The Mount S.E. Cy.	314	86.99	11.80	.18	1.08	17.13	19.69
La Nicolière Irrigation Works	Public Works Department	16	94.39	2.17	...	3.44	23.24	24.61
Mean for Pamplemousses District		1,253	86.40	10.98	.22	2.40	17.42	20.09
RIV. DU REMPART								
Antoinette	The Antoinette S.E. Cy.	234	90.91	7.07	...	2.02	13.30	14.66
Beau Séjour	The Beau Séjour S.E. Cy.	323	82.48	15.74	.08	1.75	10.72	13.00
Belle Vue	Mr. Pierre Adam	50	91.31	8.00	.01	.68	12.68	13.88
Bon Espoir	Messrs. Harel Brothers	40	81.28	3.81	14.50	.41	13.32	16.38
Forbach	Mrs. Widow H. Souchon & Co.	67	87.17	8.29	4.37	.17	10.66	12.22
Labourdonnais	The Labourdonnais S.E. Cy.	440	85.83	13.37	.11	.89	10.41	12.12
Mon Loisir Rouillard	Mr. Edouard Rouillard	36	92.40	5.90	.08	1.62	24.37	26.37
Mon Songe	Mr. A. Harel	81	91.06	8.75	.17	.02	11.35	12.46
Mon Loisir	The Mon Loisir S.E. Cy.	421	85.33	12.34	.22	2.11	12.73	14.91
Mapou	The Mapou S.E. Cy.	77	77.05	19.45	3.40	1.10	9.02	11.70
Mont Mascoal	Succession J. P. François	16	92.86	4.77	.20	2.17	29.26	31.50
Schoenfeld	Mr. B. Gujadhur	36	81.86	14.59	.24	3.31	12.93	15.79
St. Antoine	The St. Antoine S.E. Cy.	355	84.03	12.71	1.50	1.76	11.32	13.47
Mean for Rivière du Rempart		2,179	86.44	10.36	1.91	1.29	14.00	16.03
FLACQ								
Argy	Mr. Baschet & Co.	90	76.57	19.84	.26	3.83	14.12	18.44
Australia	The Mauritius Sugar Estates Cy.	54	87.31	9.92	...	2.77	11.90	13.62
Beau Champ	The Mauritius Agricultural and Industrial Cy.	366	83.15	11.39	4.54	.92	18.98	16.80
Belle Rive	do. do. do.	62	87.94	10.56	.45	.76	16.03	18.22
Belle Vue	The Constance and La Gaieté S.E. Cy.	62	84.42	14.82	.02	.74	12.55	14.66
Bonne Mère	The Bonne Mère S.E. Cy.	60	89.30	10.68	...	.02	13.17	14.74
Constance d'Arifat	The Constance and La Gaieté S.E. Cy.	169	82.06	17.14	.02	.78	12.91	15.73
Constance Manès	The Constance S.E. Cy.	53	85.86	10.84	.35	2.95	13.26	15.44
Deep River	The Deep River S.E. Cy.	166	82.25	17.41	...	.34	15.95	19.39
Etoile	The Mauritius Sugar Estate Cy.	167	85.91	12.92	.17	1.00	16.89	19.66
La Caroline	Rivalland Brothers & Cy.	49	77.09	22.91	...	...	23.98	31.54
La Gaieté	A. Cayeux and A. Lagesse	105	84.86	12.33	.13	2.66	10.91	12.85
La Lucie	Hon. J. A. Duolos, C.M.G.	41	82.52	14.28	...	3.20	14.30	17.32
Olivia	The Mauritius Agricultural and Industrial Cy.	135	87.98	8.76	1.81	1.45	10.73	12.19
Queen Victoria	The Queen Victoria S.E. Cy.	232	84.08	14.72	.37	.83	14.42	17.15
Rich Fund	The Rich Fund S.E. Cy.	205	84.21	12.78	1.29	1.72	17.00	20.18
Union	The Union Flacq Sugar Estate Cy.	287	82.41	18.57	1.56	2.46	15.60	18.92
Unité	Mr. R. Gujadhur	54	75.04	21.04	.74	3.18	11.72	15.61
Mean for Flacq District		2,337	83.50	14.21	.65	1.64	14.41	17.37
GRAND PORT								
Beau Vallon	The Beau Vallon S.E. Cy.	392	86.76	11.29	.08	1.92	17.64	20.33
Deux Bras	do. do.	215	89.31	8.03	.25	2.41	15.46	17.31
Eau Bleue	The Eau Bleue S.E. Cy.	13	80.45	19.55	...	...	12.66	15.73
Ferney	The Ferney S.E. Cy.	260	82.98	14.66	.52	1.84	14.25	17.17
Gros Bois	The Gros Bois S.E. Cy.	277	80.89	17.16	.46	1.50	14.23	17.59
La Baraque	La Baraque Ltd.	240	82.27	14.33	.68	2.72	16.22	19.71
Le Val	The Le Val S.E. Cy.	204	81.44	15.51	.42	2.63	16.61	20.39
Le Vallon	The Le Vallon S.E. Cy.	374	79.94	18.16	.31	1.09	13.55	16.95
Mon Désert Carié	Messrs E. and P. Carié	202	74.21	24.78	.14	.87	13.63	18.36
New Grove	The Mauritius Agricultural and Industrial Cy.	89	87.09	10.64	.05	2.22	15.17	17.41
Plaisance	Mr. Amédée Hugin	244	81.58	14.00	.26	4.16	15.81	19.37
Riches-en-Eau	The Beau Vallon S.E. Cy.	333	83.19	11.60	2.16	3.05	15.73	18.90
Rose Belle	The Mauritius Agricultural and Industrial Cy.	208	88.56	9.80	.21	1.43	15.62	17.63
St. Magdalena	The St. Magdalena Cy.	14	86.08	8.41	.58	4.93	16.78	19.43
St. Hubert	Mrs. Boullé & Arnulphy	96	79.67	15.62	.53	4.18	14.23	17.86
Sauveterre	Mr. Ahlman Suhawan	156	78.28	17.91	.02	3.79	13.61	17.39
Savinia	Mr. R. d'Arifat	92	79.19	19.87	.53	.41	13.72	17.32
Union Park	The Gros Bois S.E. Cy.	93	80.89	17.50	.04	1.47	14.13	17.44
Union Vale	Ww. Samouillan & Co.	171	81.31	16.15	3.84	2.21	12.16	14.95
Virginia	Messrs. Lucien and Lisis Marot	94	76.14	23.86	...	...	12.17	15.98
Mean for Grand Port		3,767	82.02	15.44	.40	2.14	14.66	17.86

1924—AVERAGE EARNINGS—Men—(Continued)

DISTRICT AND ESTATE	NAME OF OWNER	Mean number of labourers employed	Percentage of working days				Average month- ly earnings	
			Worked by each	Lost by each			Actually earned	Possible earnings
				Unlawful absence	Absence with leave	Sickness		
SAVANNE								
Beau Bois ...	The St. Aubin S.E. Cy. ...	303	87.20	10.72	.10	1.98	13.85	15.88
Bel Air St. Félix ...	A. J. Wilson & Co. Ltd. ...	455	86.51	11.21	.15	2.13	12.30	14.21
Bel Ombre ...	The Bel Ombre S.E. Cy. ...	293	79.70	19.31	.04	.95	16.62	20.85
Bénarès ...	Lady Naz & Co. ...	268	87.92	9.19	.06	2.83	16.85	19.16
Britannia ...	The Anglo Ceylon & General Estates Cy. ...	492	87.46	7.57	1.11	3.86	14.15	16.17
Combo ...	The Combo S. E. Cy. ...	82	79.15	18.76	.22	1.87	12.23	15.45
Colmar ...	Mr. Ahlman Sahawon ...	34	77.97	22.03	...	...	12.50	16.03
Riobe Bois ...	The Mauritius Sugar Estates Cy. ...	258	90.25	7.69	.16	1.90	15.70	17.39
Rivière des Anguilles ...	Mr. Senneville & Cy. ...	346	91.68	4.51	.15	3.66	15.65	17.07
St. Aubin ...	The St. Aubin S. E. Cy. ...	544	84.90	12.66	.39	2.15	13.17	15.53
St. Félix ...	The St. Félix S. E. Cy. ...	197	87.75	10.53	.15	1.57	20.32	23.16
Savannah ...	The Savannah S. E. Cy. ...	280	81.68	14.75	.90	2.67	14.49	17.73
Terracine ...	The Terracine S.E. Cy. ...	260	73.51	22.84	.21	3.44	14.35	19.52
Union ...	The Union S. E. Cy. ...	389	89.22	8.20	.26	2.32	14.63	16.39
Mean for Savanne District ...		4,199	84.65	12.85	.27	2.23	14.77	17.46
PLAINES WILHEMS								
Bagatelle ...	The Anglo Ceylon and General Estates Cy. ...	78	86.26	13.14	.41	.19	12.15	14.08
Highlands ...	do do do do ...	157	85.04	14.57	.14	.25	15.25	17.94
Ebène ...	The Stanley S. E. Cy. ...	290	93.67	5.03	.14	1.16	14.47	15.44
Réunion ...	The Réunion Sugar Factory ...	218	87.34	12.06	.10	.50	16.42	18.80
Trianon ...	Messrs. Harel and Barclay ...	390	87.03	11.57	.54	.86	12.72	14.61
Curepipe Sanitary Service ...	Medical and Health Department ...	140	96.50	3.50	...	...	30.07	31.36
Mean for Plaines Wilhems ...		1,271	89.32	9.97	.22	.49	16.84	18.70
BLACK RIVER								
Médine ...	The Médine S. E. Cy. ...	183	75.82	20.84	.08	3.26	13.45	17.73
Anna and Belle Vue ...	Anna S. E. Cy. ...	106	77.61	12.74	2.98	6.67	8.29	10.68
Mean for Black River ...		289	76.72	16.79	1.53	4.96	10.87	14.20
MOKA								
Alma ...	Alma Ltd. ...	543	81.94	17.05	.13	.88	14.18	17.28
Bel Etang ...	The Bel Etang and Sans Souci S. E. Cy. ...	452	70.80	27.69	.26	1.26	11.62	16.39
Bonne Veine ...	Bonne Veine Ltd. ...	162	89.25	8.58	.04	2.13	13.68	15.31
Côte d'Or ...	Côte d'Or Ltd. ...	224	85.13	13.27	...	1.60	16.49	19.38
Mon Désert ...	The Mon Désert S. E. Cy. ...	622	82.90	16.38	.01	.71	17.76	21.42
Sans Souci ...	The Bel Etang and Sans Souci S. E. Cy. ...	498	80.06	19.33	.01	.60	12.43	15.52
Grosse Roche ...	do do ...	89	80.26	19.56	...	.18	9.80	12.21
Bois Clair ...	do do ...	56	88.76	10.25	...	.99	10.90	12.27
Mean for Moka District ...		2,646	82.40	16.51	.05	1.04	13.35	16.22
Mauritius Railways ...	The Colonial Government ...	509	73.34	...	...	26.66	27.77	37.86
(Mean for the Colony for 1924.		18,936	83.07	11.98	.55	4.45	17.07	20.53

COLONY OF MAURITIUS

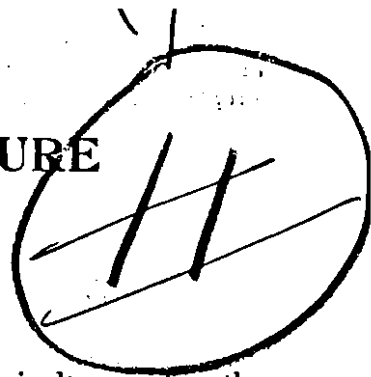
ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE

FOR THE YEAR 1925

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THE HONOURABLE THE COLONIAL SECRETARY,

I have the honour to submit the report on the Department of Agriculture and on the Agricultural conditions in the Colony for the year 1925.

PART I

AGRICULTURAL CONDITIONS IN 1925

The weather conditions experienced during the growing and harvesting seasons are summarised in the annexed tabular statement :

Month and Year	Temperature	Rainfall
1924		
November	... Below Normal ...	... Below Normal
December	... Above Normal ...	... Above Normal
1925		
January	... Generally above Normal	... Generally below Normal
February	... Below Normal ...	... Generally below Normal
March	... Below Normal ...	... Below Normal
April ...	... Above Normal ...	... Above Normal
May ...	... Above Normal ...	... Considerably below Normal
June ...	... Normal ...	... Considerably below Normal
July ...	... Above Normal ...	... Above Normal
August	... Normal ...	... Normal
September	... Above Normal ...	... Below Normal
October	... Normal ...	... Generally below Normal
November	... Normal ...	... Above Normal
December	... Normal ...	... Above Normal

Weather conditions were thus generally dry during the growing season but improved markedly in July and August. As a result, although tonnage was frequently low, the sucrose content of the cane was, generally, highly satisfactory and the total output of sugar but slightly below normal.

A cyclone passed fairly close eastward of the Island on the 12th of December. The damage done to the plantations was negligible in view of the fact that harvesting was almost completed. In the eastern localities, however, the strength of the wind was sufficiently great to cause appreciable damage to Estate buildings thereby involving pecuniary loss of some importance to the Estates affected.

SUGAR INDUSTRY

The preliminary compilation of factory results for the 1925 crop, gave a total of 233 thousand metric tons, which is but slightly below the normal out-put. Yields in the fields during October and November were considerably above anticipation, while the sucrose content of the cane was, throughout the grinding season, generally above normal.

The following figures give the preliminary results, for each district, of the compilation of factory returns, compared with the results of the seven preceding years.

Sugar production in thousand metric tons

Districts	1925 Preliminary results	1924	1923	1922	1921	1920	1919	1918
Pamplemousses and Rivière du Rempart	53.4	47.48	42.27	54.93	48.43	59.16	50.63	64.22
Flacq ...	41.8	39.06	35.51	39.56	33.77	45.35	36.86	43.69
Moka ...	33.0	30.73	31.34	29.39	28.04	37.58	35.24	34.70
Plaines Wilhems ...	18.7	18.79	15.01	20.95	14.54	21.36	19.38	19.34
Black River ...	8.6	8.47	7.17	8.65	6.15	7.57	6.54	6.25
Savanne ...	31.2	38.10	33.64	35.38	31.71	41.55	43.33	40.81
Grand Port ...	43.0	42.08	36.61	42.33	34.78	47.30	43.21	43.76
Total...	232.7	224.71	201.55	231.19	197.42	259.87	235.19	252.77

Yield of Vesou Sugar.—Of the estimated total of 233 thousand tons, 98% will, it is anticipated, consist of vesou sugars and low products 2%. The following table exhibits the progress in this connection for the past ten years.

Year	% Vesou	Year	% Vesou
1916	80.23	1921	95.98
1917	89.85	1922	97.20
1918	94.50	1923	97.61
1919	94.45	1924	98.34
1920	95.46	1925	98.00 (estimated)

Factory work in 1925.—Owing to the relatively dry conditions which prevailed during the winter season, the sucrose content of the cane was high and the extraction of sugar per cent of cane, generally very satisfactory. The average figure for the whole Island is estimated at 10.7%. Results for the previous decade are as follows:—

Year	Commercial Sugar extracted % Cane	Year	Commercial Sugar extracted % Cane
1916	10.30	1921	9.90
1917	10.62	1922	10.58
1918	10.95	1923	10.51
1919	10.42	1924	10.28
1920	10.76	1925	10.7 (estimated)

Factories conditions in 1925.—The altered economic conditions have rendered the necessity for centralisation more imperative. Three factories have been dismantled in 1925 viz: "Bois Rouge," "Rich Fund," and "Riche Bois" and it is probable that at least two more will be closed before the next campaign. The total number of factories was thus reduced, at the end of 1925, to forty five.

New sugar machinery, to the value of Rs. 1,350,069 was imported during the year and tramway material to the value of Rs. 622,687.

Area under cultivation—At the end of 1924, the area under cane cultivation approximated to 160,200 arpents (167,165 acres), the decrease on the 1924 figure being 3,900 arpents. It is probable that a further reduction of the same order will be in evidence in 1925, but no figures are as yet available.

Sales of properties on the morcellement system have been little in evidence during the year, while several hundreds of acres, cultivated by small planters on the morcellement system, have been abandoned by their cultivators and have reverted to the Estates with which the morcellement originated.

Indian Cultivation.—At the end of 1924 the area cultivated in cane by Indian Planters approximated to 60,500 arpents (63,000 acres) or 44.3% of the total cane cultivation. This area will probably evince a decrease in 1925 for, owing to the low quotations for sugar during the year, many of the smaller planters have found it more profitable to devote themselves to some other cultivation.

Disposal of the Sugar Crop.—The Sugar Planters' Syndicate continued operations during the year and controlled more than 80% of the sugar production of the Colony. The mean price realised for the 1925 campaign was Rs. 9.34 net per 50 kilos; after all deductions, the planters received Rs. 8.95 per 50 kilos.

In 1924, the mean sale price was Rs. 12.30 net per 50 kilos and in 1923, Rs. 18.94. The past year was thus extremely unfavourable from the financial point of view and, with very few exceptions, sugar companies closed the year with a deficit.

Previous to 1914, the bulk of the sugar production of the Colony went to India. Between 1914 and 1924 the majority of it was exported to Great Britain. In 1924, however, a considerable resumption of exportation to India occurred but stopped abruptly in 1925. Figures for the past four years are as follows:—

Crop of	Export to India	Total Export
1922-23	267 Tons	205,382 Tons
1923-24	2,300 "	180,773 "
1924-25	168,217 "	219,281 "
1925-26 (to date)	22 "	195,681 "

Conditions affecting the Sugar Industry.—In view of the collapse of sugar market, strenuous efforts have been made on Estates with a view to reducing the cost of production. Agricultural labour has now been brought down almost to pre-war rates: many of the smaller planters have found it impossible to depend only on the cultivation of small holdings of $\frac{1}{2}$ to 1 or 2 acres and hired themselves out again to large Estates. As a result, an influx of labour became evident as soon as the trend of the sugar market was clearly downward. During the latter part of the year, agricultural operations could be performed as they had never been since 1914. Implemental cultivation in Mauritius, has come to stay and, with the help of ploughs and tractors and the much cheapened cost of labour there is every reason for believing that the cost of production will, henceforth, be considerably reduced.

The economic crisis has brought almost a considerable amount of re-adjustment in the way of Estate ownership, accompanied by a pronounced fall in the value of sugar lands. This movement will, it is anticipated, continue throughout the present year, thereby placing the whole industry on a more secure economic basis.

Instrumental Cultivation.—Considerable progress, in this respect, is again in evidence. At the end of 1924 the number of tractors in use in the Colony amounted to 92. During the present year, ploughs and tractors to the value of Rs. 160,150 have been imported. There is no doubt that the extensive use of mechanical contrivances on Estates has gone a long way towards bringing round the local labour to a saner view of the altered conditions of the Sugar Industry.

Irrigation of Sugar Cane.—Considerable progress was made with the La Nicolière irrigation scheme during the year. The Government Experimental Station at Medine completed its last year's working in 1925, and under the approved arrangement reverts to Medine Estate. The report on the results is now in course of compilation and will be completed during the year.

Pests and Diseases of the Sugar Cane.—*Phytalus Smithi* continued to be the most serious pest of the sugar cane met with in Mauritius. During the season 1924-25, 62,251,000 beetles were destroyed at Pamplémousses. The area infected with the pest at Moka was found during the year to be very considerable and special arrangements had to be made for the conduct of the campaign at the point. In all 4,352,000 beetles were destroyed at Moka.

In Savanne, while the original infection at Joli Bois kept within bounds it was found that the infection had spread to adjoining properties in spite of all precautions. The enlargement of the quarantine area therefore became necessary. The total number of beetles captured at the point was 1,816,000. Extensive experiments with Calcium Cyanide and Paradichlor were conducted against the pest during the year but without favourable results.

In relation to other pests and diseases, owing to the risk of introduction of mosaic disease the addition of a plant inspector was made to the staff of the Botanical Division and regular visits of inspection paid to sugar properties throughout the Island. This has enabled a much more accurate idea to be formed of the position in relation to cane diseases than was hencetofore possible.

The chief point elucidated has been the detection and identification on canes in Mauritius of the Streak Disease, first recorded by Storey in South Africa a few years ago. The disease is not at present doing much damage and is confined so far to one variety R. P. 8. Whenever it has been detected steps have been taken for its eradication. Streak has also been detected on maize and on eight species of wild grasses.

Mosaic disease has not again been recorded in the Island, and it seems clear that the measures taken when the imported Indian canes were found to be affected, have very fortunately, stamped out the malady. The disease exists in Reunion and the chief danger is that of introduction from that Island. So far as possible, plant quarantine precautions are rigidly enforced with a view to keeping the disease out of Mauritius.

Other diseases have not been greatly in evidence; the gumming disease in rather wide spread especially on White Tanna.

On the whole the disease position in relation to canes except in so far as concerns *Phytalus Smithi* does not give cause for grave anxiety.

Investigations in relation to the Sugar Industry.—Research and investigation have followed the usual lines, and is anticipated that during 1926 the results of several important pieces of work will be sufficiently far advanced to permit of publication.

SUBSIDIARY AGRICULTURAL INDUSTRIES

The depression in relation to the sugar industry has caused increased attention to be paid to the question of subsidiary industries and towards the end of the year on the motion of the Honourable Junior Member for Port Louis, His Excellency the Governor appointed a Central Committee to consider steps to be taken to facilitate the development of subsidiary industries in Mauritius.

Aloe Fibre.—Quotations for aloe fibre remained in the neighbourhood of Rs. 500 per ton of prime till the middle of the year. Prices subsequently fell and, with occasional fluctuations, reached Rs. 390 in December.

The export for the past ten years have been as follows:—

Year	Bales	Year	Bales
1916	7,118	1921	1,150
1917	5,647	1922	3,120
1918	1,974	1923	2,400
1919	10,139	1924	4,987
1920	3,500	1925	8,633

The system of baling at present in vogue in Mauritius gives 4 bales to the metric ton.

During the year the committee appointed by Sir Hesketh Bell K.C.M.G., to consider methods for improving the Aloe industry presented its reports. The chief recommendations were (a) the organisation of fibre growers to form an association which would co-operate in the handling, grading and marketing of the crop and (b) the establishment of standard grades for Mauritius fibre.

The Association appealed for assistance from Government towards the erection of a central grading and baling establishment and this was granted in the form of an advance of Rs. 100,000 subject to certain conditions. Simultaneously, the Director of Agriculture while on leave in England entered into negotiations with buyers with a view to establishing standard grades for fibre.

Proposals for such standardisation were finally agreed upon and if the local producers accept the grades proposed the industry will have been standardised.

In relation to Sisal sixty acres of experimental cultivation at Plaine Lauzun were reaped and decorticated by the Corona Fibre machine. Unfortunately the results were not encouraging, only 1½ per cent fibre being obtained. This substantiated previous results and is undoubtedly due to the nature of the soil which is heavy and badly drained. It is practically certain that had the experiment been laid down on fair draining soil in Black River instead of at Plaine Lauzun a conspicuous success would have been achieved.

Production of Alcohol.—The production of alcohol in the past 10 years according to Treasury returns, is as follows :—

1915-16	...	1,091,485 litres	1920-21	...	1,900,000 litres
1916-17	...	1,883,607 "	1921-22	...	1,749,994 "
1917-18	...	1,602,414 "	1922-23	...	496,237 "
1918-19	...	1,529,315 "	1923-24	...	523,892 "
1919-20	...	1,666,000 "	1924-25	...	638,196 "

Practically all the alcohol produced is consumed locally as rum.

During the course of the year steps have been taken by Medine Factory in Black River, for erecting a modern distillery annexed to the Sugar Factory. It is anticipated that the plant will be in working order in 1926.

Tobacco.—Efforts to develop the tobacco industry have been continued during the year. At the end of 1924 there were approximately 250 acres under cultivation representing an increase of 100% in two years. During the year 1925 Mr. G. Corbett, Agricultural Superintendent Rodrigues, was despatched to study the methods of cultivation and preparation of tobacco in the Union of South Africa, Southern Rhodesia and Nyasaland, and research is now being carried out under this officer to ascertain the most suitable varieties for the conditions prevailing.

There is plenty of land in Mauritius suitable for tobacco, much of this is under cane, but there exists a moderate area suitable for tobacco and not suitable for cane which is not at present cultivated : this measures at least 10,000 acres.

The results of experiments which have been carried out are most promising, and the production of bright leaf for cigarette purposes appears possible. Experiments in the various methods of curing i.e. flue, air, and fire curing are being carried out with various types and varieties of tobacco, the types including cigar, Burley, and both bright and heavy Virginian types.

There are limited possibilities for expansion in Rodrigues and also perhaps in some of the lesser dependencies. In Rodrigues the area available is not great, perhaps 1,500 acres, but the people there have for years past grown a coarse variety of tobacco for export to Mauritius. The trade is uncertain and unremunerative owing to the poor quality of the produce and the uncertainty of market conditions but given the means of producing an article marketable on the open market developments on some little scale are practically certain to follow.

Both in Mauritius and Rodrigues tobacco is chiefly grown by peasant cultivators each person cultivating a plot of about ¼ to ½ acre, of the total area under cultivation ; 83% is comprised of plots of less than 1 acre.

The labour supply for large plantations is difficult, and there might be prospects for the extension of the industry provided labour can be found.

The tobacco is all manufactured in the Colony and is of the peculiar type imported from Reunion. It is manufactured by the carrotting process. The only factories in the Island are three Chinese factories and one belonging to the Government.

The Government Tobacco Factory purchases leaves direct from the growers as 1st, 2nd, and 3rd grade leaves. The tobacco manufactured is wholesaled direct from the factory to the retailers and the same procedure is followed by the Chinese.

Tea.—The local tea industry continues in a languishing condition. In spite of protection to the extent of Rs. 0.60 per kilo, local teas cannot compete with foreign imported teas. Statistics of production are as follows :—

1887-97	...	5,000 Kilos per annum	1916-17	...	30,000 Kilos per annum
1898-07	...	32,000 " "	1917-19	...	32,000 " "
1908-10	...	35,000 " "	1919-21	...	20,000 " "
1911-15	...	38,000 " "	1922-24	...	25,000 " "

The yearly importation of tea into the Colony averages 180,000 Kilos, of which 160,000 come from Ceylon.

Coconuts.—Little interest is attached locally to this crop. All the coprah exported from Mauritius is the produce of Oil Islands (Dependencies of Mauritius) which turn out 8 to 9 hundred tons yearly in the average.

Vanilla.—In spite of favourable market conditions, the industry remained stagnant throughout the year.

Food Crops.—The collapse of the sugar market has, once more, turned attention to food crops. In 1924 maize was grown on 2,000 acres approximately and manioc on 3,000. Under both heads an increase occurred in 1925, but figures are not yet available.

Vegetables, which occupied 3,000 acres in 1924 have increased by about 20%. More exact figures are not yet available.

In general food crops evince marked progress as compared with last year

Live Stock.—Importation of cattle from Madagascar in 1925 numbered 9,044 heads, of which 8,289 were for food, of a total value of Rs. 622,080.

The local cattle breeding industry remained practically stagnant during the year for the reasons given in last year's report. A recrudescence of interest took place however in relation to small stock notably goats, poultry and rabbits and a special section of the Stock Breeders Association was organised to deal with this question. The Government Dairy at Curepipe continued to work satisfactorily, while interest in improved dairy conditions continued to be manifested.

Animal Diseases.—During the year the systematic campaign against surra was actively maintained, with the result that a large number of animals were examined. The number of equines found infected with the disease showed a considerable increase on figures for previous years; while the increase in the case of bovines was practically nil as shown in the following table:—

Year	Number of animals examined	No of infected animals detected	Percentage of infected animals on total examined
1922	... November and December only	51	...
1923	... 5,968	... 150	... 2.5%
1924	... 5,959	... 37	... 0.5%
1925	... 7,330	... 59	... 0.8%

In 1924 out of 37 infected animals 6 were equines; in 1925 out of 59 infected animals 13 were equines.

The treatment of bovines was carried out in 22 cases by infirmiers trained previously by the Government Veterinary Surgeon and it is gratifying to remark that at the end of the treatment in each case, the animal was actually found free from the disease. All cases detected were of isolated nature, there having been no severe outbreak in any particular locality. This result is no doubt due to the campaign which has now been carried out for over 3 years.

Owing to the prevalence of contagious diseases in Réunion and Madagascar, quarantine measures in relation to animals imported from these countries were strictly enforced, while under the regulations against rabies 40 dogs were kept under observation in the Government kennels.

AGRICULTURAL EDUCATION

The Mauritius Agricultural College continued its operation successfully during the year, the details of the work are dealt with in a separate report. During the year 24 students were on the books.

The new buildings were opened by His Excellency Sir H. J. Read K.C.M.G. C.B. on March 12th 1925.

The completion of the scheme marks a very important educational advance in the Colony

During the year a scheme for establishing a farm school was put forward for consideration by the Director of Agriculture but so far no action thereon has been found possible. The training of Agricultural and Horticultural apprentices in co-operation with the Forests Department has been maintained.

Inspection and instruction in relation to School Gardens have continued. There are at present 18 gardens in working order. A course of lectures on Nature Study to teachers in training at the Curepipe Teachers Training College was delivered during the year by the Government Botanist.

I would like once more to reiterate the opinion expressed in the last report that in an agricultural country such as Mauritius there is great need for the systematisation and extension of agricultural teaching in relation to primary schools, it is to be hoped that means may eventually be found for linking together the present unco-ordinated efforts into a compact and coherent scheme.

In relation to agricultural teaching at the Royal College an important step taken during the year was the substitution of higher teaching in the sciences underlying agriculture for the former syllabus in agricultural science in the English Scholarship class.

CO-OPERATIVE CREDIT SOCIETIES

The Co-operative Credit movement continued to make some progress during the year though it has by no means recovered from the effects of the years 1919-20. The work of the Societies is reviewed in a separate report.

AGRICULTURAL SHOWS

A very successful agricultural show was held at the head quarters of the Department of Agriculture at Reduit in October. These shows fulfil a useful purpose inasmuch as they help to focus attention on questions relating to subsidiary industries and also serve as a means of disseminating informations respecting points of interest.

RODRIGUES

There is no particular event of importance to record in relation to this dependency. The work of the experiment station is reviewed in a separate section.

PART II.

WORK OF THE DEPARTMENT OF AGRICULTURE DURING THE YEAR 1925.

Staff Changes.

Dr. H. A. Tempany, Director went to England on sick leave in May. Mr. D. d'Emmerez de Charmoy acted as Director, Mr. E. F. S. Shepherd as Assistant Director, Mr. C. A. O'Connor as Registrar Co-operative Credit Societies and Mr. W. H. Edwards as Entomologist during his absence.

Mr. Jollivet's services as Officer in charge of Curepipe Dairy were terminated in March.

Mr. Y. Lefebure, Stock Inspector returned from Study leave in South Africa in March and assumed provisionally charge of the Government Dairy, Curepipe.

Mr. A. Valasois returned from Study leave in England in September and resumed work as Overseer of Le Réduit Grounds.

Mr. G. Corbett, Agricultural Superintendent of Rodrigues, returned from South Africa where he had been sent on special mission to study Tobacco Cultivation in June and remained in Mauritius on special duty.

Mr. N. Mc Gregor, Acting Assistant Agricultural Superintendent was seconded for duty in Rodrigues as Acting Agricultural Superintendent in May.

Mr. E. Colin resigned his post as officer in charge of the Irrigation Experiment Station in May and was succeeded by Mr. U. Rivalland. This post was abolished in November.

Mr. F. Giraud resigned his appointment as Assistant Chemist on account of ill health in February and Mr. R. Laval, Scientific Assistant was appointed provisionally to succeed him.

Mr. F. Berchon was appointed provisional Scientific Assistant in the Chemical Division in February.

Mr. E. Emile was appointed 4th Class Clerk in this Department in December.

The post of Lady Typist in this Department was abolished and replaced by a 6th Class Clerk. Mr. I. Felix was appointed to the post in December.

Mr. S. Perbaye acting 6th Class Clerk resigned his appointment in September and was replaced by Mr. Sérieuse.

The operations of the various divisions are reviewed in the following pages.

ENTOMOLOGICAL DIVISION

The acting Entomologist reports as follows:—

Campaign against Phytalus Smithi.—The results for the year 1924-25 campaign has been the subject of a special report, printed and distributed amongst those concerned. At Joli Bois purchase of beetles was substituted for collection by special gangs as at Pamplemousses and Moka.

Experiments on the control of insect pests.—Against Phytalus grubs Paradichlor-Benzene and Calcium Cyanide were tried as soil insecticides, though these insecticides were applied on comparatively extensive areas and in different climates the results obtained have been disappointing.

Petrol was tried concurrently with the above mentioned insecticides against Oryctes Tarandus at Gros Bois and it was ascertained that petrol and Calcium Cyanide especially could be used in an effective manner to check the spread of this pest, outbreaks of which occur sporadically in certain localities of this Colony.

As regards the destruction of ants Calcium Cyanide was employed chiefly against Solenopsis Geminata the destructive red ant. The Chemical proved very effective when put in contact with the insects but much less satisfactory results were obtained when it was buried in the soil as it decomposes rapidly and the gas liberated does not diffuse in an appreciable manner in the galleries of the nests.

While making investigations on the best methods for the control of cutworms it was found that chepped cactus leaves soaked in a solution of Sodium Fluoride used as baits give very good results.

Study of life cycle of insects of economic importance.—The Biology of *Stomoxys nigra* which is a possible vector of Surra in this Colony has been studied. Substantial progress has been made in the elucidation of the habits of this fly which has been successfully and repeatedly reared from the egg to the adult stage in the laboratory. It has not however been possible to obtain fertile eggs from the individuals hatched in captivity. Experiments on the transmission of the disease were not made as the virus could not be obtained.

The habits of *Prodenia litura* were also studied, it has been found that during the summer this insect could complete its life cycle in as short a period as forty days.

Experiments have been started and are still in course with the aim of adapting *Coccus cacti*, (which lives on and destroys *Opuntia monacanta*) to *Opuntia Tuna* the other variety of Prickly Pear which is considered as a pest in this Island.

Advice on insect problems.—Numerous demands for advice were received from the public, many localities were visited by officers of the Entomological Division and when this was not possible the necessary information was sent by letter. When necessary sprayers were lent to the public.

To assist in *Phytalus* control, small collections of insects were prepared and distributed amongst the managers of the Estates situated within or near the infected zones. Each of these collections contained specimens of *Phytalus* and *Typhia* in all stages of development as well as specimens of *Oryetes tarandus* in the adult and larval stage.

Regulations concerning plant pests and diseases.—One hundred and sixteen separate inspections of importations of plants were made at the Customs and Post Office. Four hundred and twenty-six cases of fruits and one hundred and ninety-six parcels of tubers and plants were examined. Twenty cases of cane cuttings, 12 packets of seeds, 20 bundles of plants intended for exportation were also examined and certificates delivered.

Government regulations concerning the restrictions on traffic in plants and farmyard manure within the regions proclaimed infected with *phytalus* were strictly enforced. On two occasions individuals who had contravened the regulations were prosecuted and condemned.

Investigations in Animal Parasitology and on the Diseases which affect Farm Animals.—A large number of post mortems were made with a view to ascertaining the diseases which cause the largest mortality amongst fowls, pigeons, rabbits, etc. Coccidiosis of birds caused by *Eimeria avium* was observed to be one of the commonest disease.

A number of examinations of cattle faeces were made from animals suffering from chronic diarrhoea; and Coccidiosis was found to be a common disease.

A Strongylid worm identified in England as *Mecistocirus digitatis* was found to be the essential cause of pernicious anaemia of cattle, specially when these are young.

CHEMICAL DIVISION

The Chemist reports as follows :—

Laboratory Accommodation

Reorganisation of the laboratories of the Chemical Division followed the opening of the Mauritius College of Agriculture. This division took over the main laboratory in which the students had worked, various alterations in bench accommodation and sinks being affected. Further alterations are at present in hand.

Lines of Investigation

(a) NITROGEN CYCLE.—Experiments in continuation of those conducted by the late Assistant Chemist in 1924 on the Nitrogen Cycle, have been completed, and interesting results have been obtained. In these pot experiments, the effect of the molasses, green dressing and farmyard manure on the reversion of nitrates to the form of organic nitrogen in the soil was tried. In all cases where molasses had been applied to the soil. It was found that a large percentage of the nitrogen applied to the soil in the form of sodium nitrate, had either been converted into other forms, such as ammonia or organic compounds, or else had been lost as gaseous nitrogen. The results of this series of experiments show the danger of applying nitrates and molasses together.

(b) LOSSES OF NITROGEN DURING THE STORAGE OF FARMYARD MANURE.—Four storage tanks were constructed at the Stock Farm, Réduit, for investigating losses occurring in making farmyard manure. The actual storage of manure was started at the end of May. In the first series of experiments comparison was made under four different methods of storage.

The four compartments were filled as follows :

1. Manure well compacted and covered.
2. Manure not compacted and covered.
3. Manure well compacted and not covered.
4. Manure not compacted and not covered.

The manure in the tanks was allowed to rot until the latter part of October. The type of manure in tanks 1 and 3 was totally different from that in the remaining two. In the former, very little rotting had taken place, because of the exclusion of air so that a "long" manure was the result. In the other tanks, rotting had gone on much more vigorously, and in the top part of the tanks, the form of the litter was completely destroyed, only a dark brown humus like mass being left.

In all four tanks the losses of nitrogen were surprisingly small, the greatest loss being in tank No. 2, where the loss amounted to approximately 14%. A further series of experiments is being carried out with the object of finding out the effect of applications of molasses to the manure heap.

Soil Survey—Moka District.—Twelve samples of soil were taken from the Moka District, and submitted to general Chemical and Physical analysis. All these soils show a slightly acid reaction, the most acid showing hydrogen ion concentration of pH 5.0, the least acid having a pH value of 6.2. All these soils were characterised by the high percentage loss on ignition, which varied from 16.58% to 32% ; these soils are very rich in nitrogen the content amounting to over 0.5% in some cases. As regards the physical analyses, the finer particles, i.e. the clay and fine silt predominate, whereas there are only small percentages of fine gravel, coarse, medium and fine sand. In three cases, the material soluble in strong hydrochloric acid was estimated; ferric oxide and alumina were found to be present in very amounts, up to 62% of the soil consisting of these substances. The material insoluble in strong hydrochloric acid is very low, only from 9.9% to 28.8% of the soil being insoluble. This work is being continued.

Milk from the Government Dairy, Curepipe.—Periodical analysis of milk from this dairy has been carried out since the middle of October. Each week four samples of milk are obtained, Monday evening milk, Tuesday morning milk, Friday evening milk and Saturday morning milk, and these are analysed for fat, solids not fat, and lactose. The milk was found to be possessed of good keeping qualities, and to be of fairly good quality.

The monthly average are as follows :

	OCTOBER		NOVEMBER		DECEMBER	
	Morning	Evening	Morning	Evening	Morning	Evening
No. of samples...	2	2	8	8	9	9
Fat ...	2.9	3.75	3.2	3.8	3.35	3.19
S.N.F. ...	8.65	8.75	8.65	8.9	8.6	8.6
Lactose ...	4.4	4.5	4.5	4.35	4.5	4.35

The examination of milk samples will be continued to find the normal seasonal variation of the milk given by a herd of cows.

Subsoil Samples.—During the construction of the Agricultural College, an absorption pit about 30 feet deep was dug in the grounds near the Department's buildings. At the suggestion of the Honourable Director samples of the subsoil were taken every eighteen inches, and analysed by the Assistant Chemist. A separate report on this work is being submitted.

Samples of Tobacco.—Nine samples of tobacco were received from the Officer in charge of Tobacco Experiments for analysis, both of the leaf and of the ash; four of the samples coming from Rodrigues. On the whole the local samples were better than those from Rodrigues, and had the following characteristics.

Local Leaf.—The amount of ash in the leaf is rather on the low side, and the other constituents are similar to those of published analysis. There are greater variations from the normal in the composition of the ash. Generally speaking, the ash is poor in Calcium oxide and Potassium oxide, and rich in Chlorine. Most of the samples of tobacco examined possessed fairly good burning qualities.

Rodrigues Leaf.—The four samples were all very similar in composition, the ash being higher than in the local leaf, the chief difference being however the much greater percentage of Albuminoids, with a corresponding increase in nicotine. In the ash the percentage of calcium oxide is very low, but that of magnesium oxide is correspondingly high, the two amounting to about 30–32% of the ash. On the whole the ash of these samples is richer in potash than those of the local leaf, but this advantage is nullified by the greatly increased chlorine and sulphate of the former.

Routine work.—The analyses carried out by the division are as follows:—

	Samples received	Estimations
Soils—Physical and Chemical	15	165
Moisture Determination Medine	250	250
Milk—Curepipe Dairy	43	129
Guano Melange...	35	168
Lime	66	66
Dipping	72	72
Salpetre	8	16
Sulphate of Ammonia	3	3
Phosphatic manures	8	11
Water	1	9
Fumier	32	77
Tobacco	9	87
Canes and Cane juice	1203	2406
Miscellaneous	28	75
Total	1773	3534

Report.—In collaboration with the Agricultural Superintendent of Rodrigues, the Chemist prepared a report on "The water supply of Rodrigues", based on the analysis of 52 samples of water.

Education.—The usual duties in relation to teaching at the Mauritius Agricultural College were performed by the Chemist and the Assistant Chemist.

Other Examinations.—The Lecturer in Agricultural Chemistry was appointed Sub-Examiner for the Matriculation Examination of the University of London, held at the Royal College, Curepipe, in January. The above officer, together with the Botanist were appointed joint Sub-Examiners for both the Final and Intermediate Science Examinations of the University of London, held at the Royal College, Curepipe in June and July. Owing to the illness of the only candidate, the Final Examination for the Degree of Bachelor of Science was not held.

The Lecturer in Agricultural Chemistry was also one of the four examiners appointed for the examination for the Registration of Agricultural Chemists.

BOTANICAL DIVISION

The Botanist reports as follows:—

During the year under review the staff of the Division was increased on the recommendation of the Board of Agriculture by the appointment of a Plant Inspector. The Chief reason for the appointment of this officer was to assist the Botanist and Mycologist in the inspection of the cane fields of the Colony to determine whether or not mosaic disease existed here and to suppress it in its early stages if found. The Plant Inspector assumed his duties on April 1st, and since that time he has conducted ninety inspections of sugar cane plantations. He has up to the present detected no cases of mosaic but has assisted the Botanist and Mycologist in keeping informed of the distribution of many diseases of sugar cane and other crops on the Island. As a result of the inspection service also a disease of sugar cane, the streak disease, hitherto unrecorded in Mauritius was brought to the notice of the Department; and measures taken to suppress it. The remainder of the time of the Plant Inspector has been spent in assisting the Botanist and Mycologist in the laboratory and field work.

As in the previous year, the work during 1925 comprised investigations on the physiology of the sugar cane, investigations on sugar cane and other plant diseases, miscellaneous investigations and lecturing and supervision of laboratory work in the College of Agriculture.

Investigations on the physiology of the sugar cane.—The observations in connection with the rates of growth of the sugar cane and the effects of environment were continued at Réduit, Pamplémousses and Médine.

An investigation of the transpiration ratio of the sugar cane conducted at the Irrigation Experiment Station, Médine, along lines similar to those at the Central Experiment Station, Réduit, during the two preceding years.

Sugar Cane Selection.—The second year's progeny plots of R.P. 6 and White Tanna at Médine Experiment Station, planted with "tops" selected from the first year's progeny plots were reaped. Selected "tops" from these plots were planted at the Central Experiment Station, Réduit, owing to the intended closing of the Médine Experiment Station early in 1926.

The canes in the progeny plots planted in 1923 at Highlands and Mon Désert were reaped and tops selected and planted in the second year's progeny plots.

This work is still being conducted in collaboration with the Sugar Technologist.

Investigations on plant diseases

Sugar Cane.—One of the results of the inauguration of the plant inspection service was the discovery of *streak disease*, hitherto unrecorded in Mauritius. Up to the present the disease has been found on sugar cane on four different Sugar Estates and at the Central Experiment Station, Réduit. Three of these estates are in the Rivière du Rempart district and one in the Black River district. Infected stools, where found, have been destroyed, warning given to planters as to the possible danger of planting infected "tops," and experiments carried out at Réduit to determine the effect on the crop of planting infected "tops" and the means of its transmission from infected to healthy shoots. A similar disease has been discovered on maize, coix edulis and eight species of wild grasses widely scattered all over the island.

The aerial transmission of the disease from infected to healthy sugar cane is not readily effected in Mauritius.

Gumming disease caused by *Bacterium Vasculorum* was reported widely distributed over the island, chiefly on the White Tanna, but in a mild form where found.

Smut caused by *Ustilago sacchari* was reported from ten estates in the drier parts of the island, six being in Rivière du Rempart, two in the Pamplémousses district and two in the Black River district. D. K. 74 was the variety most affected.

Pineapple disease caused by *Thielaviopsis paradoxa*, caused losses chiefly through the partial or complete destruction of cuttings. The Bordeaux mixture treatment was recommended.

Root disease was prevalent and is apparently due to a variety of causes. In most cases the disease appears to be aggravated by dry conditions, lack of drainage, cultivation, fertilizers and other unfavourable conditions.

The plot at Reduit in which the experiment on the treatment of root disease was started in 1924 has not yet been reaped, but the treated lines show considerable superiority in vegetative vigour over the control line.

What seemed to be a severe attack of root disease broke out in two White Tanna first ratoon fields at Joli Bois. *Fusarium* sp. was the fungus most often found in association with the drying roots.

Thielaviopsis paradoxa was isolated from the reddened tissues of diseased rhizomes.

Diseased stools and cuttings from diseased stools were planted under favourable conditions at Reduit, and all but one stool show, at the time of writing vigorous vegetative growth. This shows that the disease at Joli Bois was probably aggravated by unfavourable cultural conditions.

An experiment is being conducted in one of the diseased fields to determine the effect of the application of lime, followed by a commercial fertilizer, on some of the affected stools, and the effect on a subsequent crop of the removal of the affected stools from a portion of the field and the planting of a green dressing before again planting cane.

Thielaviopsis paradoxa was isolated also from the rhizomes of virgin M. 55 and White Tanna canes showing typical symptoms of root disease at Beau Vallon Estate.

In most of the cases of root disease examined at the laboratory, *Fusarium* Sp. was the organism most frequently encountered in association with drying roots.

Red Rot caused by *Colletotrichum falcatum* was reported from seven estates widely separated on the White Tanna, D. K 74, Iscambine, Senneville, Louzier and M.B I varieties.

An acute form of leaf spotting due apparently chiefly to *Helminthosporium sacchari* was encountered on several estates during the year. The spotting due to *Leptosphaeria sacchari* was widespread but generally in a less acute form.

Amongst other plant diseases examined during the year are the following:—

On Coconuts (*Cocos nucifera*.) An apparent root disease, which seriously weakened all the trees over a three acre area at Pointe aux Sables and destroyed a line of trees on the banks of the Grand River Nord West. A *Botryodiplodia* was found, amongst other unidentified fungi, in association with drying roots at Pointe aux Sables and a *Chaetostroma*, amongst other fungi at Grand River Nord West. There was heavy infestation of the drying leaves with three species of scale insects identified by the Assistant Director as *Aspidiotus cyanophili*, *A. cydoniac*, and *Dactylopius* Sp. The trees at Grand River Nord West were felled and destroyed and the diseased area at Pointe aux Sables surrounded by a trench after the removal and destruction of dead and drying leaves of diseased trees in the attempt to destroy as many scales as possible.

The situation in relation to this disease formed the subject of a special report to the Board of Agriculture.

Up to the present the disease shows no signs of spreading beyond the entrenched area and only one tree has died since the disease was first reported in February.

Coconut plantations at Pointe aux Piments and Trou aux Biches were inspected, but no similar disease was observed at either of these places.

Inoculation experiments to test the pathogenicity or otherwise of three fungi isolated from dying coconuts roots are now in progress at the Central Experiment Station, Réduit.

On Tobacco.—(*Nicotiana tabacum*). Mosaic disease at Pamplémousses Experiment Station, chiefly on ratoon shoots, and a mild outbreak in the Black River District.

Leaf Spots.—One of which is apparently of non-parasitic origin and the other—a large, brown, well defined spot—associated with both fungi and bacteria. Its etiology is at present under investigation. One fungus found associated with this spot seems to be identical morphologically with a fungus isolated from sugar cane and coconut leaves, and identified at the Imperial Bureau of Mycology as *Basisporium gallarum*, referred to by some authorities as *nigrosporaoryzae*.

Root rot or Granville wilt.—caused by *Bacterium solanacearum* at Pamplémousses.

On Potato (*Solanum tuberosum*) and *Tomato* (*Sycopersicum esculentum*), blight, caused *Phytophthora infestans* was of frequent occurrence. Instructions were issued to growers on the means of combatting this disease by spraying with Bordeaux mixture.

Letchi.—(*Nephelium litchi*) trees at La Caroline were infested with and considerably weakened by an alga, morphologically identical with *Cephaleuros mycoidea*.—Application of a 2% solution of copper sulphate to the bark of affected trees and attention to their cultivation and manuring was advocated.

On Pistache.—(*Arachis hypogea*) a stem and root rot the symptoms of which strongly suggested attack of *Sclerotium rolfsii*. The mycelium of the fungus isolated from diseased tissues resembled that of *Sclerotium rolfsii*, but there was an absence of sclerotium formation in the cultures.

On Tatmaka.—(*Calophyllum Inophyllum*) trees in the forest of the Bassin Blanc—a root disease, which is spreading rapidly. A fungus with the fructifications typical of *Graphium* sp, the imperfect form of *Rosellinia* sp, was isolated from drying roots.

The investigation of this disease is still in progress.

Miscellaneous work included:—

- (a) Raising of seedlings from Gros Cayeux cane at Highlands in collaboration with the Agricultural Superintendent.
- (b) Supervising London University Intermediate Science Examinations at the Royal College.
- (c) Inspection of School Gardens with the Chief Agricultural Officer.
- (d) Lecture course in Nature Study to School Teachers and students of Teachers' Training College.
- (e) Experiments with a weed killer.
- (f) Contribution of articles to "La Revue Agricole de l'Île Maurice."

During the year a bulletin on Diseases of Sugar Cane in Mauritius was prepared for the press by the Botanist and Mycologist.

The Botanist and Mycologist delivered 84 lectures and supervised 53 laboratory periods in botany and mycology at the College of Agriculture.

The opportunity is here taken of acknowledging with thanks the valuable services rendered this Division by the Imperial Bureau of Mycology, Mr. H. H. Storey, Mycologist, Natal Herbarium, Durban, and Miss S. M. Stent, Division of Botany, Pretoria, in the identification of specimens despatched to them.

VETERINARY DIVISION

The Government Veterinary Surgeon reports as follows:—

Importation of animals.—During 1925 the following animals were inspected previous to their landing in Mauritius.

From all countries (except Dependencies)

Madagascar	Bullocks	...	...	...	9,044
	Dogs	...	...	...	41
	Cats	...	...	...	2
	Horses	...	...	...	84
	Mules	...	...	...	2
	Pigs	...	...	...	141
	Sheep	...	...	...	116

From Dependencies:—

Rodrigues—	Bullocks	...	...	...	416
	Goats	...	...	...	2,599
	Pigs	...	...	...	2,096
	Sheep	...	...	...	620
St. Brandon	Tortoises	...	...	...	109

Animal Quarantine Station.—The following animals imported by the Steamer "Norwegian" coming from Tamatave through Réunion where Anthrax was reported to prevail were placed under one month's quarantine before admittance in the Colony:—

Bulls	...	...	...	2
Pigs	...	...	...	70

The two bulls were in very poor condition on their arrival.

Innoculations with Guinea Pigs were made with a view to controlling Anthrax, but the results were negative. One pig died of Septicæmia due to Suppurative Arthritis.

Forty imported dogs were placed under observation in the Government kennels during 1925. Two kittens and four dogs are undergoing their observations at their owners' premises.

An outbreak of distemper occurred in the kennels and several animals died of this disease. One pup died of intestinal occlusion due to worms, one dog died of intestinal hemorrhage and two others of suspected hemorrhagic purpura.

Inspection of Rodrigues animals.—On account of reported abnormal deaths of stock in Rodrigues, an inspection of animals in that dependency was made during the year. After careful examination of the animals affected the conclusion was arrived at that:

Pigs.—had died of pneumonia owing to heavy rains.

Sheep.—the thirteen deaths registered among the Nigerian sheep were due to parasitic Bronchitis (*Strongylus*).

Cattle.—Conjunctivitis with complication of Keratitis were detected on Sindhi cattle, affecting specially the calves. Treatment was applied and proved successful.

Contagious Disease

Surra.—The surra campaign was carried out by the Assistant Stock Inspector and partly by the officers of the Phytalus Division. The number of animals examined was 7,330 and 59 cases of surra detected among which 13 equines were slaughtered.

The presence of the disease was recorded practically in all the districts and specially on animals the property of roulers.

Epizootic lymphangitis.—Two horses were found affected with a mild form of this disease and subsequently cured.

Government Animals.—Animals the property of Government were visited regularly once a week. The following animals have been treated for:

Police Department.—Three horses and mare for limping, two for wounds and two for abscesses.

Medical and Health Department.—Two mules for limping, three bullocks for abscesses, two for colics, one for keratitis, two for swelling of the neck and one was condemned on account of a fractured shoulder due to a fall, one bullock recovered from pneumonia.

Immigration Department.—One donkey was treated for lameness.

Barkly Asylum.—One goat was treated for suppurative arthritis and one heifer condemned for a fractured leg.

Stock Farm.—One catalane donkey was treated for colic and cured, one Sindhi cow was treated for Mamitis, one Ongole heifer died from pneumonia, one Friesland bull calf from Cachexia, one Punjabi bull from acute colics, one working bullock was treated for lameness.

Government Dairy.—Cows of the dairy have been treated for Stomatitis, lameness, rheumatism, mamitis, and three of them for retention of after birth, five cows died from poisoning by dipping and eight recovered, another one died subsequently from prolapsus uteri, three calves died of cachexia and one of peritonitis. Infection of wire worms was detected on the calves and a specific treatment applied with good results.

Meat Inspection

Regular inspections of the slaughter houses of the Colony were made. In three cases seizures of meat on account of tuberculosis were maintained. During the year the regulations re the slaughtering of cows and heifers were amended, unfortunately numerous heifers and cows were slaughtered owing to the wording of the "milk breed" being not specified; the regulations were however re-amended and now cows and heifers of the milk breed are not allowed to be slaughtered until five years.

Meat inspection at Rose Hill abattoir was under our personal control during three days owing to a strike of the butchers.

Cases of cruelty and bestiality.

Fourteen animals were examined at the request of the Police Department for cases of cruelty, two heifers and one goat for cases of bestiality. Reports in each case were forwarded to the Police Department re prosecution.

Report of Deaths to the Department.

The death of two mules, one poney and three bullocks were reported to the Department through the Police. Immediate steps were taken for the examination of animals in the vicinity.

STATISTICAL DIVISION

The Statistician reports as follows:—

The Blue Book statistics relative to Agriculture were supplied to Government. Statistical data were also supplied to the International Institute of Agriculture, Rome; to the Board of Trade, to the Colonial Secretary's Office, the Immigration Department &c. Quarterly reviews of local prices of certain essential articles together with index numbers were issued. Monthly reports on weather and crop conditions and forecasts of the sugar crop were prepared and submitted to Government.

The meteorological service of the Department was continued. Observations of temperature of the air and of evaporation, soil temperature at depths of 3 in, 6 in. and 12 in. rainfall, continuous record of air temperature are taken at the Central Experiment Station, Réduit, while temperature of the air and of evaporation and rainfall are observed at five secondary stations viz, Royal Botanical Gardens, Pamplémousses; Nursery Garden, Curepipe; Abercrombie Nursery, Port Louis; Mahebourg demonstration plot and Medine Irrigation Experiment Station. In addition, most Sugar Estates contribute rainfall observations. These data are reduced and co-ordinated to assist in the work of crop forecasting and for general investigations on agricultural problems connected with climatological factors.

The Statistician acts as Registrar of the Mauritius Agricultural College and Lecturer in Physics and applied Mathematics in the same Institution. He is also Secretary to the Board of Agriculture.

SUGAR TECHNOLOGICAL DIVISION

The Sugar Technologist reports as follows:—

Cane Selection.—The progeny plots planted at Highlands in 1923 (Bud selection following Mr. Shamel's method) were harvested in September. Fifteen stools showing marked superiority on the rest of the field were selected and planted for the second selection. It is interesting to note that several of the best stools originated from the same progeny.

At Medine Experimental Station, the ratoons from the first progeny plots harvested last year, showed a larger number of stalks than normal, both in the white Tanna and the R. P. 6. The second progeny plots planted in 1924 showed some very good stools. Unfortunately, the Officer in Charge through incomprehensible misunderstanding harvested to two progeny fields before the third selection was made.

The mass selection plots at Riche Fund did not show any particular interest; the selection will be started again next year.

Visits to factories and Investigations on Estates, etc.—Twenty factories were visited this year, several of them by special request. The advice given to the respective Managers at their demand was welcomed.

Research work on the Hydrogen Ion Concentration (pH) was actively continued. An important advance was made with regard to the determination of pH on raw mill juice by the colorimetric method.

Research on the colloids was also pursued. Investigations were made on a particular sample forwarded by the Manager of one Estate and a report was made therefore at his request.

Controle Mutuel.—The "Controle Mutuel" was successfully carried out, 33 factories having contributed during the crop and returns regularly distributed fortnightly amongst the contributors.

Educational.—Complete courses of 50 lectures in Sugar Technology were delivered to the third year students of the College of Agriculture. Weekly lectures on the Cultivation of sugar cane and on Sugar House chemistry and Chemical control were delivered to the second year students during the year. Practical demonstrations were given in the Laboratory.

Practical laboratory work was performed by students after the lectures under the supervision of the Technologist.

The third year students visited in detail several factories during the off season and the workshops of Tardieu & Co. Ltd. and Les Forges et Fonderies de Maurice, Ltd. with the Technologist.

Publications.—A Bulletin prepared by the Technologist on The Determination of the Hydrogen Ion Concentration in the Cane Sugar Industry, was published.

AGRICULTURAL AND EXPERIMENT STATION DIVISION

The Chief Agricultural Officer and the Agricultural Superintendent report as follows:—

Royal Botanical Gardens, Pamplémousses.—These gardens were kept in a satisfactory state throughout the year. The lawns were regularly mown and swept. All avenues, paths, lakes and canals were constantly cleaned. The hedges were kept trimmed, all kiosques and bridges repaired. The ornamental beds were renewed from time to time.

A plantation of 5,500 *Eucalyptus rostrata* was made on the cleared land at Mon Plaisir. 235 Mango grafts and 300 *Letchis* layers were made. Plants and seeds were received and sent in exchange as in former years.

Many persons visited the Gardens during the year, and several picnics were held.

Curepipe Gardens.—A new Green house 75 × 9 feet was erected, it was stocked with an interesting collection of Orchids, Ferns, Gloxinias, Begonias and other ornamental plants.

Ten new beds were made in the flower garden; they were planted with selected varieties of roses. There is now a fine collection of roses which is much admired by visitors.

Experiments in hybridising Gladiolus, Amaryllis, Fuchsias, *Crytanthus*, Dahlias and Poinsettias were carried out; many seedlings were raised. The best varieties will be propagated and sold to the public.

The roads, hedges, lawns and educational section were also maintained in good condition.

The sale of flowers and plants amounted to Rs. 472.88.

Le Réduit Grounds.—Le Réduit Grounds were kept in good order. Two plant sheds were erected in the Nursery, for raising and propagating ornamental plants. The fern collection was increased by the addition of several new varieties from South Africa. Vegetables were raised in the Kitchen garden and supplied to Government House throughout the year.

The plantations of forest trees in the different compartments of the domain were weeded, and recruiting done where necessary.

Abercrombie Nursery.—A new plant shed 20' X 50' was erected to shelter the plants for sale to the public. It is intended to put up a second shed next year in order to provide more space for the increasing number of plants raised in this nursery.

Fruit trees, ornamental and economic plants were sold to the public for the sum of Rs. 2,327, an increase of Rs. 445. over the preceding year. 1,438 plants were supplied free to Government Institutions, and 26 given in exchange.

1,000 selected coconuts were received from Ceylon; they were given free to this Department through the courtesy of the Gate Mudaliyar A. E. Rayapatase.

Mr. Gabriel Régnard gave seeds of palms and fruit trees, and cuttings of new varieties of Avocado Pears and Cherimoya.

A small consignment of Peach trees was received from South Africa; it is intended to propagate and offer them for sale as soon as possible.

Tobacco Factory.—The operations of the Tobacco Factory were fairly satisfactory. 3,236½ Kilos of Tobacco were delivered for sale; this is an increase of 1,016 Kilos over the preceding year.

5,327 tins of Dodo cigarettes were sold.

The following is a summary of the work done :—

Dried leaves received by the Factory	...	...	8,046.5 Kilos
Carottes made	...	...	1,328
Number of recarrotings during the year	...	...	7,309
" carottes worked	...	...	1,580
Raw tobacco obtained	...	...	7,540 Kilos
Sifted dry tobacco obtained	...	...	3,655 "
Dust and Butts	...	...	1,412 "
Sifted Tobacco % Raw Tobacco average	...	...	48%
Tobacco delivered for sale	...	...	3,236 "

A steam Drier to prepare freshly cut cured tobacco was received and put in working order. The trials recently made give favourable results.

Tobacco Cultivation.—99 free permits to grow tobacco were issued during the year. Seeds of the Blue Tobacco were distributed free to growers, their plantations were regularly visited by officers of the Department to give advice if needed.

School Gardens.—Frequent visits were paid to the 18 School Gardens by the Chief Agricultural Officer and his Assistant. Seeds and plants were supplied free by this Department. The Head Teachers also received tools, fencing materials and manure.

Money prizes for the best kept gardens were awarded as follows :—

1st Prize of Rs. 50 to Plaisance Orphanage.
2nd " " 40 " Rivière des Anguilles Govt. School.
3rd " " 35 " Palma Church of England Aided School.
4th " " 30 " Highlands Road Ch. of England Aided School.
5th " " 25 " Nouvelle France " " "
6th " " 20 " Old Grand Port Sister School.

Exhibits from School Gardens were sent to Moka Agricultural Show and several Prizes were obtained.

Food Settlements.—The Maize and other plantations on the Food Settlements at La Ferme, St. Martin and St. Thomas suffered much from drought. The crops obtained were very poor compared with those of preceding years. Several planters abandoned their plantations on this account. Complaints are received from time to time about damages to crops by stray cattle. One pig was shot and others impounded.

The Co-operative Credit Societies assisted the planters by making advances of small loans.

No money Prizes were awarded for the best kept Plots, as it was not considered that any of them deserved special mention.

Co-operative Credit Societies.—A separate Annual Report by the Acting Registrar gives an account of the work done by these Societies.

Maize Secherie.—The transfer of the Secherie to Rodrigues is still under consideration. It was not operated during the year.

Moka Agricultural Show.—The largest Agricultural Show so far held in Mauritius was held on the grounds of the Department of Agriculture, Réduit, on the 4th October last.

A local Committee of planters and other persons interested in Agriculture was appointed with the Member for Moka as Chairman.

Funds were obtained by money contributions from planters, Estates Firms etc., and the usual Government grant of Rs. 400, Gate money and the balance of previous shows.

About 500 exhibits were staged ; there were some fine specimens of sugar cane, Fibre, Vegetables etc. Six of the leading Firms of the Colony took advantage of the show to exhibit ploughs, pumps, cattle food, paint, tools and other articles of interest to the planting community.

The show was well patronized, 1,272 persons paid for admission ; free tickets were given to Exhibitors, and the usual invitations were made.

Special Diplomas of Merit and Money Prizes amounting to Rs. 945.50 were awarded.

Experiment Stations at Reduit and Pamplémousses

Experiments with sugar cane.—Experiments with varieties of sugar canes were continued during the year at Reduit, Pamplémousses, Britannia, Highlands, Labourdonnais and Long Mountain.

Samples have been sent for analysis to the Central Experiment Station and the canes were reaped and weighed experimentally.

New experimental variety plantations have been established at Reduit, Pamplémousses, Labourdonnais and Britannia.

Seedling canes were raised as in previous years at Pamplémousses of which 2,070 were planted out as one hole trials.

From the 1924 seedlings, 132 were selected from one hole trials and planted out in 6 hole trials.

From 150 seedling canes planted in January 1925 (seedlings 1923) in 6 hole trials, 20 were selected and planted in 30 holes.

A certain amount of canes and cuttings have been distributed among planters, while a collection of cuttings of selected canes was packed and despatched to Nossi-Bé, Madagascar.

The total number of samples of canes crushed in the Experimental Mill of Reduit was 1,203, in each case the juice was weighed and a sample sent to the Chemical Division for analysis.

The total yield of canes at the Central Experimental Station for the year was 176,810 Kilos, this were sent to Trianon Estate.

Canes reaped at Pamplémousses weighing 53,460 Kilos were sent to the Mount Estate and canes reaped at Long Mountain weighing 8,610 Kilos sent to Mr R. Bussowan.

Experiments with other Corps.—Experiments with varieties of food crops have been continued as follows :—

Reduit.—Maize breeding by selection trials.

Sweet Potatoes trials with 43 varieties.

Eddoes and Tannias trials with 8 varieties.

Yams trials with 12 varieties.

Ground nuts trials with 8 varieties.

Tobacco " 8 "

Manioc " 17 "

Sunflowers " 2 "

Pamplémousses.—Sweet Potatoes trials with 32 varieties.

Eddoes and Tannias trials with 6 varieties.

Yams " 12 "

Ground nuts " 9 "

Tobacco " 8 "

Manioc " 30 "

Sunflowers " 2 "

A trial was made with Broom Corn and a good broom made and circulated among the different firms of Port Louis with a view to securing a market. The results of these experiments are shown in the Appendix.

A large amount of tubers, vines and cuttings have again been distributed among the public.

The Tobacco grown on Experimental Stations was sent to the Government Tobacco Factory.

Seeds of four new varieties of Tobacco viz: Root Rot Resistant Burley, Heavy Hancock Burley, Blue Pryor, Gold Leaf received from Nyasaland Protectorate were sown at Pamplémousses and Reduit at the end of the year.

Stock Farm

The following births were recorded :—

3 Holstein Friesland bull calves.

1 Ongole bull calf.

3 Hissar bull calves.

1 Mysore bull calf.

2 Sindhi bull calves.

1 Holstein Friesland heifer calf.

1 Ongole heifer calf.

1 Hissar heifer calf.

Total 13

Five deaths were recorded as follows :—

1 Punjabi bull died of colics.

1 Holstein Friesland bull calf of General Anœmia.

1 Ongole heifer calf of pneumonia.

1 Hissar bull calf of bad conformation. (3 days after birth)

1 Mysore bull calf of bad conformation. (2 days after birth)

3,507½ litres milk were supplied to Moka Hospital from 1st January to 31st December, and 184½ litres milk were sold privately.

The following bulls were sent on Estates for services :

Hissar bull to Les Salines, Black River, from 10.7 to 22.12.25.

Ongole bull to Clarens Estate from 15.6 to 6.10.25.

The following services of bulls were recorded at the Stock Farm (not including services on Estates) :—

Pure breed Ongole Bull Hathi II	...	...	...	2 services
" Hissar " Amir II	...	...	...	4 "
" Holstein " Elsemberg Beau Bromel	...	...	...	7 "
" Mysore " Nizan II	...	...	...	1 "
" Sindhi " Shabhundur I	...	...	...	2 "

Total... 16 services

Poultry run and Rabbitry.—Satisfactory results were obtained at the poultry run and the rabbitry.

A fair amount of eggs, fowls, rabbits and guinea pigs have been sold to the public, while some eggs were incubated by the incubator of this Department.

Buildings and Roads.—All buildings and roads belonging to the Department have been kept in good condition.

Medine Irrigation Experimental Station.—The fields as on the three previous years have been reaped and weighed experimentally and the yield of canes amounting to 377,480 kilos sent to Medine Sugar Estate.

Samples of each plot have been sent to Réduit for crushing and analysis.

The results obtained by this Experimental Station are very satisfactory.

Sisal Plantation and Fibre Factory.—A new trial was made at the Corona Fibre Factory from May 4th to May 29th.

Leaves produced by 60 acres of sisal were decorticated.

The total weight of leaves obtained was 391,391 Kilos or 65.23 Kilos per acre.

The weight of wet fibre was 19,173 Kilos yielding 6,000 Kilos of dry fibre.

The produce contained in 30 bales is being shipped for sale.

GOVERNMENT DAIRY

Considerable improvement was effected during the year both in the production of milk and the condition of animals. The total milk production increased by 25,950 litres as compared with the previous year. The following amounts of milk were supplied to Hospitals :

Civil Hospital	...	...	...	37,564 Litres
Victoria	„	...	...	20,916 „
Moka	„	...	...	4,846 „
Souillac	„	...	...	1,892 „
Mahebourg	„	...	...	866 „

and 1,291 litres were sold to the public.

Five cows died in February from dipping poisoning and one heifer cow died from prolapsus of the uterus. Nine calves died from various diseases and from worm infection. 28 births were recorded, of which 19 were bulls and 9 heifers. Two cows calved untimely.

Twenty bull calves were sold during the year and numerous demands for others have been received.

The production from individual cows is shown on Appendix IV.

RODRIGUES

The Acting Agricultural Superintendent Rodrigues reports as follows :—

Climatic or Agricultural Conditions.—On my arrival in May the conditions were rather bad for agriculture and stock raising, the pastures contained practically only dry grass. The drought was doing much harm to the growing crops.

Drinking water became very scarce indeed. So much so, that on the 15th, at a meeting of the Rodrigues Agricultural Society it was decided not to hold the annual Agricultural Show.

On the 21st July over two inches and on the 15th to 17th just two inches of rain were recorded. This did much to relieve the situation but as most of the water was lost by surface drainage, the beneficial effects were not as might have been expected if the same amount of rain had fallen in smaller showers at more regular intervals.

On the whole the rainfall is steadily increasing as can be seen from the following figures taken at Oyster Bay.

Year 1923	1924	1925
29.90 ins.	32.26 ins.	35.12 inches rain

The rainfall is still much below the normal which is given in the Mauritius Almanach as 44.55 inches.

The rainfall during 1925 was as follows :—

	Oyster Bay	La Ferme
January	... 1.91 ins.	0.91 ins.
February	... 3.86	2.76
March	... 3.59	2.39
April	... 5.30	2.99
May	... 1.26	0.85
June	... 1.40	1.46
July	... 4.20	3.82
August	... 3.33	3.41
September	... 1.95	1.56
October	... 0.67	0.31
November	... 4.69	3.80
December	... 2.96	1.93
Total	... 35.12	26.19

Work in the Experimental Station.

The plantation of Kikuyu grass and Elephant grass have been extended, especially the Kikuyu which has been planted in the area between the paddocks and the river and also in part of the Coconut plantation.

Maize.—Two half acre plots were planted on the 13th January and the 16th June, 1925 and yielded 867 and 746 lbs grain respectively.

Sweet Potatoes.—Two plots were planted during the year.

- (1) Nineteen varieties on the 15 January. This was completely destroyed by stray pigs.
- (2) Nineteen varieties on the 18th August. This is not ready for reaping.

Cotton.—Long Staple Upland.

- (1) $\frac{1}{8}$ acre sown on the 21st July, 1924 yielded 12 lbs clean and 10 lbs stained lint.
- (2) $\frac{1}{8}$ acre sown on the 21st August, 1924 yielded 14 $\frac{1}{2}$ lbs clean and 8 $\frac{1}{2}$ lbs stained lint.
- (3) $\frac{1}{4}$ acre sown on the 24th April, 1925. Results not available as the plants are still bearing.

Sea Island.

- (1) $\frac{1}{8}$ acre sown on the 16th January, 1925 picking ended in December. Yielded 7 lbs clean and 3 $\frac{1}{4}$ lbs stained lint.

*Tobacco.**Connecticut Broadleaf.*

- (1) Sown 14th August, 1924 and yielded 699 lbs dry leaves per acre.
- (2) Sown 14th August, 1924 and yielded 927 lbs dry leaves per acre.
- (3) Sown 11th April, 1925 and yielded 792 lbs dry leaves per acre. Attacked by White Rust Disease.
- (4) Sown 30th November, 1925 results not available.

Zimmer.

- (1) Sown 14th August, 1924 and yielded 1,152 lbs dry leaves per acre.
- (2) Sown 14th August, 1924 and yielded 1066 lbs per acre.
- (3) Sown 9th February, 1925 and yielded 990 lbs dry leaves per acre.

Yellow Pryor

- (1) Sown 14th August, 1924 failed.
- (2) Sown 9th February, 1925 seedlings attacked by disease, second sowing 11th April. Yielded 422 lbs dry leaves in spite of the fact that the plants were attacked by the White Rust.
- (3) Sown 14th November, 1925 and transplanted on the 30th December. Results not available.

Joiner

- (1) Sown 9th February, 1925 seedlings diseased, second sowing 11th April. Yielded 990 lbs per acre.
- (2) Sown 14th November. Results not available.

Sterling

- (1) Sown 9th February, 1925 seedlings diseased, second sowing 11th April. Seedlings again diseased. Plants saved yielded 1204 lbs dry leaves per acre.

Blue Tobacco

Sown 9th February, 1925, failed. Second sowing 11th April yielded 1144 lbs of dry leaves per acre.

R. R. K. Burley

Sown 19th October, 1925. Germination good, transplanted 9th December, results not available.

Heavy Hancock Burley.—Upstanding type.

Sown 28th October, 1925. Germination not good, results not available.

Blue Pryor

Sown 1st November, 1925. Germination very good, results not available.

Gold Leaf

Sown 14th November, 1925. Germination not good, results not available.

Cuban

- (1) Sown 14th August, 1924, yielded 249 lbs dry leaves per acre.
- (2) Sown 9th February, 1925, young plants attacked by disease. Yield 286 lbs dry leaves per acre.
- (3) Sown 30th November, 1925, germination good, results not available.

Manioc.—Twenty varieties experimented with, planted on the 25th April, 1924 and reaped on the 13th and 14th April, 1925. Yields were as follows:—(in pounds per acre).

Federated Malay States ...	8,240 lbs.	No. 29 ...	11,600 lbs.
Icery ...	6,080	Constantin ...	3,760
Smallings ...	3,340	Trinidad ...	1,280
Paloma ...	3,480	Blancite ...	2,840
Australie ...	4,920	Bitter ...	2,720
Pacho No. 3 ...	960	Trinidad No. 2 ...	2,440
Negrita 15 ...	3,240	Singapore ...	8,160
Cassava Burreum... ..	7,520	Negrita No. 12 ...	5,440
Cabesadura ...	5,840	Blue Top ...	5,160
Rodnay ...	6,080	Butter Stick ...	5,040

The same varieties were planted on the 25th April, 1925. All the varieties are growing well and will be reaped soon.

Pistache or Ground Nuts.

Nine varieties were experimented with. They were planted on the 21st February, 1925, the germination was good but the plants were attacked by a fungus disease and did not grow well. The nuts were dug on the 30th July, 1925.

The yield, given in pounds of dry nuts per acre, is as follows:—

Virginia Running ...	825 lbs.	Refusque ...	1,540 lbs.
Virginia Bunch ...	1,008	Bunch ...	1,393
Gambia... ..	1,760	Virginia ...	953
Tennessee... ..	495	Spanish Pea Nut... ..	1,760
Local ...	1,521		

A new plantation of these nuts will be made as soon as the season will be favourable.

Orchard.—Number of trees planted during the year: Coffee 81, Avocado Pear 3, Peach 3.

Two hundred and forty-three shade and ornamental trees were planted along the drive, river and above the spring.

Produce sold during the year:

Forest produce ...	...	Rs. 1,544.29
Miscellaneous ...	...	13.60
From Experimental Station ...	...	115.32
	Total	Rs. 1,673.21

Exports.—Shipped to Mauritius by the "Secunder."

Salt fish 3,624 bales, Cuttle fish 1,053 bales, Tobacco 323 bales, Accacia 9,406 bags, Beans 469 bags, Garlic 265 bags, Cattle 407, Goats 3,658, Sheep 575, Pigs 2,094.

Stock Farm.

Catalonian Donkeys.

Births ...	2 Jacks and 3 Jennies
Deaths ...	1 Jenny
Present number ...	8 Jacks and 20 Jennies

Sindhi Cattle.

Births ...	2 Bull calves
Deaths ...	Normandy bull
Present number ...	2 bulls, 2 cows and 4 bull calves

Nigerian Sheep.

Births ...	23 Ram lambs, and 25 Ewe lambs
Deaths ...	1 Ram, 5 Ram lambs, 4 Ewes and 6 Ewe Lambs
Present number ...	52 Rams and 68 Ewes

Pigs.

Middle Whites.—Births ...	2 boars and 3 sows
Deaths ...	2 boars and 5 sows
Present number	4 boars and 2 sows
Services ...	36
Large Blacks.—Births ...	5 gilts and 2 boars born dead.
Deaths ...	1 sow
Present number	6 boars and 4 sows
Services ...	18

Fowls

Present number.....4 White Plymouth Rock Cocks, 25 Cross Hens and 3 Cocks (cross).

Buildings

During the year the following buildings were repaired: the drying shed, the stockman's hut and all the shelters for the animals.

Improvements at Oyster Bay

The dyke below the spring has been repaired. Part of the drive leading to the Experimental Station has been laid down with small stones and pebbles.

Paddocks for the cattle, donkeys and sheep were erected in February.

In consequence of an outbreak of Typhoid in Oyster Bay, caused by the use of the impure water from the river, and also of the shortage of water in Port Mathurin, pipes, given by the Magistrate, were laid from our main to the end of Coconut plantation next to the shore. The inhabitants of Oyster Bay have thus uninterruptedly been supplied with pure water.

Since this have been done no fresh cases of Typhoid have been registered.

The jetty was erected in April.

A cement drinking trough was placed between the two paddocks and separated in such a way as to allow the cattle and donkeys to use one half and the sheep the other.

Trefles Co-operative Credit Society.

Two meetings were held last year.

On the 21st November two shares were bought and paid in by one of the original members, Emile Pierre Louis.

Three applications for loans of Rs. 75, 50 and 40 respectively were granted by the Committee in November.

Assests of the Society.

Loans	...	...	Rs. 165.00
In bank	...	...	58.36

Total	...	...	Rs. 223.36

The members now number thirteen in all.

Re-afforestation.

The following lists give the number of trees planted in new plantations and the amount of recruiting done in 1925.

<i>New Plantations</i>	<i>Recruiting</i>
Bois noir 25,832	Bois noir 13,900
Filao 3,250	Filao 550
Badamier 856	Terminalia Arjuna 80
Jamrosa 3,100	Pomme Singe 3,050
Bois d'Olive 3,200	Jamrosa 8,600
Bois d'Oiseaux 2,400	Jack 100
Jack 225	Bois d'Olive 3,200
Pomme Singe 37,335	
Juniper 600	
French Bois Noir 200	

The lack of continuous rains has been a considerable set back to the planting operations.

BOARD OF AGRICULTURE

The Board of Agriculture established under Ordinance 30 of 1912, consists of:—

His Excellency the Governor, President.

The Director of Agriculture, Vice-President.

The following members were appointed in 1925:—

Honourable J. A. Duclos, C.M.G.,

„ M. Martin,

„ L. Noël,

„ G. Antelme,

„ M. d'Unienville

J. de Spéville, Esquire,

A. Wiéhe, Esquire,

J. J. Gibson, Esquire,

F. A. Nichols, Esquire,

A. Hugnin, Esquire,

F. N. Langlois, Esquire,

G. Clarenc, Esquire,

H. G. Ducray, Esquire,

G. Regnard, Esquire,

L. H. de Froberville, Esquire,

E. Rouillard, Esquire,

M. Lagesse, Esquire,

Pundit Boleram Mookteeram, Esquire.

During the year 1925 there were two meetings of the Board held on March 11th and December 2nd, respectively.

Meeting of March 11th.—At this meeting the following questions were discussed:—

1. Consideration of steps to be taken to develop the Tobacco Industry.
2. Assistance to Local Stock Breeding Association.
3. Agricultural shows.

Meeting of December 2nd.—Appointment by the board of four delegates to a committee of seven members for considering the question of making the Island more self supporting

PUBLICATIONS

The following publications were issued during the year :—

1. The Determination of the Hydrogen Ion Concentration in the Cane Sugar Industry.
2. Hints on the General Treatment of Insect Pests in Mauritius.

The following reports and memoranda were prepared and submitted to the Council of Government and to the Board of Agriculture.

- Report on Co-operative Credit Societies 1924-25.
- Report on operations against Phytalus Smithi 1924-25.
- Preliminary forecast of the 1925-26 Sugar Crop.
- Final forecast of the 1925-26 Sugar Crop.

LEGISLATION

The following Ordinances, Proclamations and Notifications were issued during the year :—

Ordinance No. 13 of 1925 to amend the Registration of Agricultural Chemists Ordinance, 1917.

Ordinance No. 32 of 1925 to provide for the establishment and working of a Hemp Syndicate.

Proclamation No. 3 of 1925 to proclaim the occurrence of Phytalus Smithi in certain parts of the district of Moka.

Proclamation No. 11 of 1925 to prohibit the importation from Reunion Island of seeds of plants for use as green dressings.

Proclamation No. 20 of 1925 to proclaim the occurrence of Phytalus Smithi in certain parts of Savanne.

Proclamation No. 24 of 1925 to proclaim a certain area in the District of Black River infected with a disease on coconut trees.

Proclamation No. 38 of 1925 to proclaim a certain area in the District of Black River infected with a disease on coconut trees.

Government Notification No. 124 of 20.5.25 and 5.9.25 Regulations and Syllabus of Registration of Agricultural Chemists.

Government Notifications Nos. 126 and 198 of 23.5.25 respectively: Regulations made examinations under the Animals Diseases (Consolidation) Ordinance, 1924.

Government Notifications Nos. 219 and 242 of 26.9.25 and 31.10.25 respectively: Regulations made under the Slaughtering of Cattle Restriction Ordinance, 1918.

EXPENDITURE AND RECEIPTS

The expenditure and receipts of the Department has been as follows :—

	Rs.	o.
Personal Emoluments	80,779.25	
Maintenance of Gardens	14,130.79	
General Services	1,747.79	
Prevention of Plant Pests and Diseases...	5,581.22	
Prevention of Animal Diseases	2,292.72	
Upkeep of Stock	9,338.64	
Establishment of Demonstration Plots	1,127.99	
Subvention to Société Horticole	1,000.00	
Travelling Expenses	9,303.85	
Miscellaneous expenses Co-operative Credit Societies	25.44	
Maintenance of Food Plantations	1,893.59	
Maintenance of Experiment Stations	13,039.66	
Minor Industries	20,534.61	
Apparatus and Chemicals	6,726.50	
Nursery for economic plants	1,316.16	
Registration of Chemists Examination	47.00	
Destruction of Phytalus Smithi	55,876.91	
Experimental Station for Irrigation of canes	8,034.90	
Upkeep of plantation at Floreal	452.83	
Dairy { Capital Expenditure	15,887.31	
{ Upkeep Expenses	27,924.62	
Agricultural Shows	400.00	
Research on Farmyard Manure	439.61	
Services rendered by the Railways	18,309.40	
Purchase of raw Tobacco	8,917.14	
Total	305,128.23	

The receipts were :—

	Rs.
Sale of flowers and plants	3,328.28
Sale of Stock	330.00
Services of animals	179.00
Sale of eggs and poultry	593.01
Sale of milk, Cattle Station	1,362.40
Sale of canes	7,740.51
Analytical fees	824.00
Miscellaneous	414.40
Rent of Tea Plantation	500.00
Sale of Tobacco	17,942.12
Contribution C.C.S.	2,186.00
Veterinary fees (Customs)	1,303.00
Destruction of Phytalus Smithi (Customs)	38,466.50
Loans repaid by Co-operative Credit Societies	2,700.00
Interest on loans	357.20
Rent of Crown Lands at La Ferme and St. Martin	332.00
Sale of produce, Experimental Dairy	24,999.82
Sale of Sisal Fibre	2,382.80
Total ...	105,941.04

GENERAL.

The Director of Agriculture served as Chairman of the local Committee for the British Empire Exhibition throughout the year.

Examinations for the Registration of Agricultural Chemists were held in July.

April 8th, 1926.

H. TEMPANY,
Director of Agriculture.

APPENDICES

Appendix I.—Meteorological data at the Departmental Stations.

„ II.—Returns of beetles captured in Phytalus Smithi Campaign.

„ III.—Return of yields of Minor Economic Crops at Redit and Pamplémousses.

„ IV.—Return of yields of milk from cows at the Government Dairy.

„ V.—Distribution of Sugar Cane Diseases in Mauritius in 1925.

APPENDIX I.

Meteorological observations made at the Stations under the control of the Department of Agriculture for the year 1925.

Months	STATION																								
	Réduit				Curepipe				Abercrombie				Médine			Pamplémousses		Mahébourg							
	Temperature		Rel. Humi.	Rainfall	Temp.	Rel. Humi.	Rainfall	Temp.	Rel. Humi.	Rainfall	Temp.	Rel. Humi.	Rainfall	Rainfall	Rainfall										
	Max. °C	Min. °C	Mean °C	%	Mm.	Days	Max. °C	Min. °C	%	Mm.	Days	Max. °C	Min. °C	%	Mm.	Days	Max. °C	Min. °C	%	Mm.	Days	Mm.	Days	Mm.	Days
January ...	28.5	21.1	24.2	73	194.9	30	24.0	19.3	86	383.0	21	30.5	23.1	65	181.7	16	30.0	21.9	69	251.6	16	135.2	14	60.6	11
February ...	28.8	20.9	24.3	70	63.7	26	24.2	19.0	83	158.2	23	31.6	22.8	60	34.8	14	30.4	21.6	61	27.4	7	40.0	6	26.3	6
March ...	28.0	20.1	23.2	73	129.8	31	23.0	18.7	88	306.9	26	31.0	22.7	61	107.7	13	30.0	21.0	65	124.8	12	197.8	21	103.9	13
April ...	26.7	19.0	22.6	73	197.3	29	22.3	18.4	88	420.3	24	29.0	22.3	62	194.6	14	28.5	20.8	71	159.2	14	219.5	20	129.2	11
May ...	26.0	17.9	21.4	78	97.9	30	22.1	17.1	90	120.0	18	28.9	21.0	63	18.6	9	28.3	19.6	69	7.0	3	55.2	19	74.4	7
June ...	23.9	15.3	19.1	72	40.1	27	19.5	13.9	87	90.0	15	26.9	17.2	60	76.3	10	27.0	19.2	68	19.0	3	44.5	9	5.2	4
July ...	22.9	14.9	18.5	74	81.5	30	18.5	14.5	83	223.5	27	25.8	18.3	60	52.8	13	26.1	17.5	72	0.0	0	79.3	21	76.2	7
August ...	21.3	14.2	17.3	70	54.5	29	16.9	13.5	87	226.2	26	25.2	17.7	55	35.7	16	25.7	14.3	75	9.1	2	55.5	12	103.3	16
September ...	24.3	15.8	19.3	65	20.3	27	19.2	14.6	86	118.0	18	27.6	19.6	54	15.0	9	27.2	14.4	60	19.0	1	13.2	5	11.0	6
October ...	25.3	16.1	19.9	64	67.0	24	20.1	14.6	82	148.0	17	28.3	19.5	53	15.9	10	28.3	17.3	60	22.5	2	31.5	7	0.2	1
November ...	26.4	18.5	21.8	71	182.2	22	21.7	16.8	84	397.9	17	29.3	21.5	56	77.5	12	29.5	19.7	61	33.8	4	142.2	14	191.0	8
December ...	27.6	20.6	23.6	69	318.4	26	23.3	19.0	84	594.0	24	30.1	23.0	63	165.0	12	30.0	21.0	61	105.6	6	137.0	10	151.7	9
Year ...	25.8	17.9	21.3	71	1,447.6	331	21.2	16.6	86	3,186.0	256	28.7	20.7	59	975.6	148	28.4	19.0	66	773.0	70	1,150.9	158	933.0	99
					Total					Total					Total										

REMARKS.—The figures for relative humidity are obtained from the means of readings taken daily at 10 h. and 15 h. Temperature at Réduit is obtained from the hourly measurements given by a thermograph standardised daily at 10 and 15h.

APPENDIX II

Return of Beetles Destroyed at Pamplemousses for Season 1924-25 (October 1924 to March 1925)

Locality	October 1924			November 1924			December 1924			January 1925			February 1925			March 1925			Grand Total		Total
	Night Gangs	Pur-chased	Total	Night Gangs	Pur-chased	Total	Night Gangs	Pur-chased	Total	Night Gangs	Pur-chased	Total	Night Gangs	Pur-chased	Total	Night Gangs	Pur-chased	Total	Night Gangs	Purchased	
Rosalie Constance...				1,845	156,060	157,905	675	293,900	294,575		22,700	22,700		17,300	17,300		50	500	2,520	490,480	492,980
Antoinette ...				19,288	104,500	123,788	46,381	4,106,300	4,152,681	199,150	3,950,000	4,149,150	96,735	979,350	979,350	1,535	13,950	15,485	363,089	9,154,100	9,517,189
Mon Songe ...	550		550	12,741	34,000	47,741	49,641	433,400	483,041	264,950	234,900	499,850	108,350	28,700	28,700	1,300		1,300	437,532	732,000	1,169,532
Grande Rosalie ...				1,355	207,200	208,555	6,900	1,252,800	1,259,700	5,800	583,900	590,300		32,800	32,800				14,555	2,086,700	2,101,255
Beau Séjour ...	1,905	1,500	3,405	28,566	481,100	509,666	115,632	9,985,800	10,101,432	583,668	7,152,700	7,736,368	96,308	425,000	521,308	1,032		1,032	827,111	18,046,100	18,873,211
Mon Piton ...	455		455	1,956	254,360	256,316	12,800	9,678,100	9,690,900	103,578	8,094,800	8,198,378	21,769	293,900	315,669				140,558	18,321,160	18,461,718
Mon Choix ...	12		12	80	420	500		143,400	143,400			987,150		2,000	2,000				92	1,132,920	1,133,012
The Mount ...	65		65	127	2,700	2,827	5,015	11,700	16,715										5,207	14,400	19,704
Plessis ...	99		99	60		60	925		925	2,200									3,281		3,281
Maison Blanche ...	907	3,428	4,335	2,501	148,266	150,767	1,101	810,250	811,351	4,300	769,810		2,116	5,360	7,476				10,925	1,737,105	1,748,030
St. André ...	485		485	9,115	80,330	89,445	18,500	98,650	117,150	28,500	107,400								56,700	296,380	352,980
Pamplemousses Village ...				1,043		1,043	845		845	540		100,675								2,428	2,428
California ...				11,205		11,205	36,455		36,455	100,675		3,950	45,425		45,425	1,050		1,050	194,810		194,810
Congomah ...				888		888	2,385		2,385	3,950		10,175								7,173	7,173
Ilots ...				1,354		1,354	2,500		2,500	10,175		16,755								14,029	14,029
Amitié ...				1,393		1,393	4,035		4,035	16,755		6,854	8,603		8,503					30,786	30,786
Notre Dame ...				370		370	1,763		1,763	6,854		55,616	7,500		7,500					16,487	16,487
Espérance & Mon Gout ...	1,727	1,400	3,127	9,535	128,510	138,045	21,169	181,400	152,569	36,816	19,300	6,583	9,710		9,710				78,457	280,610	359,067
Rivière Calebasses ...				1,650		1,650	4,582		4,582	6,583		1,477								12,815	12,815
Souvenir ...				255		255	968	1,000	1,268	477	1,000	7,800								1,700	2,000
Rivière Citrons ...				1,325		1,325	4,200		4,200	7,800		778	3,456		3,456					16,781	16,781
Arsenal ...				153		153	462		462	778		19,850								1,393	1,393
Masilia ...										19,850		4,250	1,400		1,400					21,250	21,250
Tombeau ...							15,900		15,900	4,250		187,250	738		738					20,888	20,888
Solitude ...	4,260		4,260	50,050	10,000	60,050	77,218		77,218	180,350	6,900	1,151,710	18,247		18,247				330,125	16,900	347,025
Beau Plan ...	2,477	3,000	5,477	32,480	134,740	167,220	112,291	1,427,450	1,539,741	72,200	1,079,510	37,450	4,500	7,210	11,710				229,948	2,651,910	2,881,858
Plaine Papsyes ...	104		104	6,220		6,220	19,920	5,300	25,220	37,450		31,865	4,710		4,710				88,401	5,300	93,701
Fair Fund ...				9,409		9,409	34,950	4,300	39,250	31,855		334,150	1,595		1,595					77,819	4,300
Mauricia ...				14,705		14,705	70,020		70,020	161,850	172,300	1,796	32,495		22,495					269,070	172,300
Mon Rocher ...	98		98	253		253	1,146		1,146	1,796		5,078								3,293	3,293
Labourdonnais ...				1,762		1,762	2,123		2,123	5,078		56,130	1,110		1,110					10,073	10,073
Ferret ...				4,286		4,286	35,025		35,025	56,130		1,088,520	6,550		6,550					101,662	101,662
Bon Espoir ...				20,820		20,820	87,925	345,400	433,325	25,520	1,063,000	221,033	5,169	75,500	80,660					187,425	1,483,900
Bon Air ...	6,475		6,475	27,631	567,400	595,031	41,319	468,600	529,919	88,033	133,000	4,747	9,044		9,044					172,502	1,188,000
Belle Vue Harel ...				15		15	664		664	4,747		213,770			2,437					7,863	8,763
Triplet ...	5,940		5,940	34,144	259,359	293,494	11,655	197,900	209,555	35,770	173,000		6,380		6,380					94,339	635,250
Balaclava ...										2,175		2,175	882		882					3,057	3,057
Pointe Piments ...										11,163		11,163	2,549		2,549					13,712	13,712
P. B. Gardens ...				280		280	458		458	1,565			772		772					3,075	3,075
Total	25,556	9,325	34,881	308,861	2,578,930	2,887,791	847,498	29,425,650	30,273,148	2,123,441	24,556,320	26,679,761	488,991	1,867,120	2,356,111	4,917	14,450	19,367	3,799,264	58,551,795	62,251,059

Actual Allocation for Vote of Phytalus Smithi.

	Year 1923-24		Year 1924-25	
	Rs.	c.	Rs.	c.
Administration	5,757.07		6,031.93	
Special Gangs	15,573.02		17,356.57	
Purchase of beetles	16,172.84		20,420.83	
Joli Bois	1,236.93		1,274.21	
Réduit	296.66		359.29	
Alma & Mon Désert			5,725.24	
Surveys	543.00		734.50	
Contingencies and Sundries	2,287.42		3,112.95	
Erection of house for O.C.B. Joli Bois	131.60			
Expenses for Paradichlor-Benzene			837.81	
Total ...	Rs. 41,998.54		55,853.33	

Expenditure Incurred on Phytalus Destruction for 1924-25 Season.

	October 1924	November 1924	December 1924	January 1925	February 1925	March 1925	Total	Beetles
	Rs. c.	Rs. c.	Rs. c.	Rs. c.	Rs. c.	Rs. c.		
Purchased ...	27.97	2,087.32	9,968.68	7,115.48	1,135.93	23.30	20,358.68	58,451,795
Night Gangs...	64.47	2,367.22	4,529.58	6,076.85	4,041.28	277.17	17,356.57	3,799,264
Total ...	92.44	4,444.54	14,508.26	13,192.33	5,177.21	300.47	37,715.25	62,251,059

Rainfall at the Royal Botanical Gardens.

Months	Millim	Months	Millim.
October 1923 ...	055.5	October 1924 ...	100.5
November 1923 ...	3.5	November 1924 ...	39.9
December 1923 ...	73.0	December 1924 ...	187.5
January 1924 ...	339.7	January 1925 ...	135.2
February 1924 ...	137.5	February 1925 ...	40.0
March 1924 ...	277.0	March 1925 ...	197.8
April 1924 ...	99.0	April 1925 ...	219.5
May 1924 ...	95.2	May 1925 ...	55.2
June 1924 ...	56.3	June 1925 ...	44.5

Beetles Captured at Joli Bois and Réduit 1923-24 and 1924-25.

	JOLI BOIS		REDUIT	
	1923-24	1924-25	1923-24	1924-25
October ...				720
November ...	99,132	67,733	595	2,163
December ...	924,146	448,815	40,017	16,690
January ...	632,928	986,080	37,252	152,581
February ...	154,774	361,774	7,972	16,073
March ...		31,700		110
April ...				
Total ...	1,810,980	1,896,102	85,841	188,327

Beetles Captured in the Mont Desert and Alma Region.

October 1924 ...	
November 1924 ...	5,439
December 1924 ...	78,653
January 1925 ...	3,517,978
February 1925 ...	726,007
March 1925 ...	23,472
Total ...	4,351,549

APPENDIX III.

Results of experiments with Economics other than sugar cane at the Central Experimental Station (Redit) and at Royal Botanical Gardens (Pamplemousses) during the season 1925.

Name of variety	Redit Ks. per acre		Pamplemousses Ks. per acre		Mean Ks. per acre		
<i>Experiments with Eddoes and Tannias.</i>							
Eddoe Dasheen	5,440	Planted : Oct. 1924 Reaped : Oct. 1925	2,040	Planted : Feb. 1925 Reaped : Nov. 1925	3,740		
Tannia blanche	3,740		...		3,740		
Tannia blanca	4,760		2,040		3,400		
Tannia boliza	4,420		1,020		2,720		
Tannia white	4,080		1,360		2,720		
Tannia priete	4,080		1,360		2,720		
Tannia yellow	4,420		1,360		2,890		
Violet	1,700		...		1,700		
<i>Experiments with yams.</i>							
Oriental	13,260		Planted : July 1924 Reaped : July 1925		6,460	Planted : August 1924 Reaped : August 1925	9,860
Crops	11,220	5,780		8,500			
Iborns	10,540	2,040		6,290			
Sealed top	9,180	3,060		6,120			
Lisbon	5,780	6,120		5,950			
Bottle neck	5,780	5,100		5,440			
Bugle Horn	9,180	1,360		5,270			
Light red	6,120	2,380		4,250			
Fugue	3,740	4,080		3,910			
Cush cush	1,700	2,380		2,040			
Cush	680	2,720	1,700				
Danish	3,400	6,800	5,100				

Experiments with Manioc planted in March 1924 and reaped in April, May and June 1925.

Name of variety	Pamplemousses Ks. per acre	Name of variety	Pamplemousses Ks. per acre
Yellow bell	15,640	Negrita 12	4,420
Cotton tree	9,180	Cabesadura	3,740
Pacho 3	8,840	Trinidad 2	3,400
Icery	8,160	Australie	3,060
Blue beard white	7,820	Trinidad 1	2,720
Constantin	7,480	Negrita 15	2,380
Bitter	7,140	Rodney	2,380
Negrita 11	6,800	Negrita 17	2,380
Bobby handsome	6,460	Blue top	2,040
Cassava beurream	6,460	Paloma	2,040
Trinidad 3	5,100	No. 29	2,040
Singapore	5,100	Federal Malay States	1,700
Manioc de table	5,100	Smallings	1,700
Mullings	4,760	Blanchite	1,360
Bunch of meys	4,420	Butter Stick	680

Experiments with Ground Nuts.

Name of variety	Redit Ks. per acre		Pamplemousses Ks. per acre		Mean Ks. per acre
Itfusque ... ..	...	Planted : Decem. 1924 Reaped : June 1925	3,262	Planted : January 1925 Reaped : June 1925	3,262
Local	1,556		2,537		2,046.5
Spanish pea nut	973		2,537		1,755
Virginia Bunch	1,460		2,039		1,749.5
Bunch ... ..	...		1,495		1,495
Venessee	973		1,812		1,392.5
Gambia	568		2,900		1,734
Virginia running	324		2,310		1,317
Virginia	973		679		826
Big Japanese	649		...		649

Experiments with maize—Planted in January 1925 and reaped in June 1925.

Name of variety	Redit Ks. per acre	Pamplemousses Ks. per acre	Mean Ks. per acre
18 row impure	1,387	...	1,387
18 „ pure	1,616	...	1,616
16 „ impure	1,551	...	1,551
16 „ pure	1,534	...	1,534
14 „ impure	1,665	...	1,665
14 „ pure	1,371	...	1,371
12 „ impure	1,224	...	1,224

Experiments with Sunflowers—Planted in January 1925 and reaped in May, June 1925.

Name of variety	Réduit Ks. per acre	Pamplemousses Ks. per acre	Mean Ks. per acre
White	...	312	312
Grey	...	213	213

Experiments with Broom Corn.

Heads per acre	Brooms per acre
12,825	366

Experiments with Sweet Potatoes

Name of variety	Réduit Ks. per acre	Réduit Ks. per acre	Pample- mousses Ks. per acre	Pample- mousses Ks. per acre	Mean Réduit Ks. per acre	Mean Pample- mousses Ks. per acre	Mean Réduit and Pample- mousses Ks. per acre
d'Arifat	12,000	3,045	8,700	6,525	7,522.5	7,612.5	7,567.5
Egyptian Bebai	3,750	1,740	4,350	4,350	2,745	4,350	3,547.5
Rouge	5,062.5	2,175	...	...	3,618.7	...	3,618.7
Shanghai	3,375	2,610	8,700	3,915	2,992.5	6,307.5	4,650
Puison	2,250	2,610	17,400	5,655	2,430	11,527.5	6,978.7
Blanche	1,312.5	3,480	...	...	2,396.2	...	2,396.2
Jersey	2,250	3,915	2,175	4,350	3,082.5	3,262.5	3,172.5
Trinidad I	3,562.5	2,610	4,350	4,785	3,086.2	4,067.5	3,576.8
" III	3,562.5	2,175	8,700	5,220	2,868.7	6,960	4,914.3
Spooner	3,187.5	2,610	21,750	7,830	2,898.7	14,790	8,844.3
Bourbon	4,687.5	3,480	4,550	8,265	4,083.7	6,307.5	5,195.6
Chully	3,375	3,480	...	...	3,427.5	...	3,427.5
Georgia yam	1,312.5	3,480	...	4,785	2,396.2	4,785	3,590.6
Egyptian white	1,875	3,045	13,050	6,525	2,460	9,787.5	6,123.7
Elija	1,500	4,350	13,050	7,830	2,925	10,440	6,882.5
No. 2	2,625	3,915	...	...	3,270	...	3,270
No. 4	1,312.5	3,045	...	...	2,178.7	...	2,178.7
No. 6	937.5	1,740	...	...	1,338.7	...	1,338.7
No. 8	562.5	...	...	...	562.5	...	562.5
No. 11	375	...	...	...	375	...	375.0
No. 14	1,312.5	217	...	...	7,647	...	7,647
No. 16	1,125	3,480	...	...	2,302.5	...	2,302.5
No. 18	1,460.25	4,350	...	...	2,905.1	...	2,905.1
Yoes	7,500	4,785	8,700	4,350	6,142.5	6,525	6,333.7
Southern Queen	7,687.5	2,610	4,350	3,480	5,148.7	3,915	4,531.8
Black Spanish	2,625	2,175	...	...	2,400	...	2,400
Bigstain Jersey	1,312.5	...	3,915	3,045	1,312.5	3,477.5	2,395
Turkey class	937.5	3,045	3,915	3,915	1,991.2	3,915	2,453.1
Red Bermuda	1,687.5	3,480	17,400	5,655	2,583.7	11,527.5	7,055.6
Florida	2,960.25	2,610	2,175	3,480	2,785.1	2,827.5	2,806.3
Jaune	4,500	3,045	...	...	3,772.5	...	3,772.5
Trinidad II	3,937.5	4,350	8,700	7,830	4,143.7	8,265	6,204.3
" IV	3,750	3,915	12,750	6,960	3,832.5	9,855	6,843.7
Barbadoes Barrel	3,137.5	2,175	8,700	6,090	2,656.2	7,395	5,025.6
Hens and Chickens	2,625	3,480	13,050	7,830	3,052.5	10,440	6,746.2
Seely's Seedling	2,625	5,650	8,700	2,610	4,137.5	5,655	4,896.2
Egyptian plantation	1,125	3,915	...	...	2,520	...	2,520
Gandia	1,125	1,740	17,400	14,790	1,432.5	16,095	8,763.7
Pumpkin yam	1,125	3,480	3,480	2,175	2,302.5	2,827.5	2,565
No. 1	750	3,915	...	...	2,332.5	...	2,332.5
No. 3	375	6,960	...	...	3,667.5	...	3,667.5
No. 5	375	7,395	...	...	3,885	...	3,885
No. 7	562.5	5,220	...	...	2,891.2	...	2,891.2
No. 13	1,125	3,915	...	...	2,520	...	2,520
No. 15	375	1,740	...	...	1,057.5	...	1,057.5
No. 17	562.5	3,480	...	...	2,021.2	...	2,021.2
Egyptian Iskandation	...	...	3,480	3,480	...	3,480	3,480
Raisin	...	...	4,350	6,090	...	5,220	5,220
Violet	...	...	17,400	7,395	...	12,397.5	12,397.5
Red	...	...	8,700	3,480	...	6,090	6,090
White	...	...	8,700	3,915	...	6,307.5	6,307.5
Yellow	...	...	8,700	6,525	...	7,612.5	7,612.5
Red Jersey	...	...	...	2,610	...	2,610	2,610

APPENDIX IV.

Model Dairy-Curepipe—Return of milk yield during the year 1925.

Months	Fox Glove	Aster	Geranium	Violet	Primrose	Rose	Hyacinthe	Daffodil	Tulip	Poppy	Lobellia	Shamrock	Daisy	Dhalia	Cedara I	Lady Smith	Cedara III	Cedara II	Eisenburg	Bertha	Jauji	Elsa
January	165	172	312	66	153	156	159	183	33	...	159	215	159	120	63	53	180	106	246	232	117	219
February	76	128	276	53	84	129	74	144	...	...	86	185	133	112	9	...	108	90	192	194	84	173
March	...	118	300	56	...	145	...	150	...	...	100	191	150	125	...	...	124	95	216	202	112	181
April	...	34	287	44	...	102	...	136	...	...	37	151	140	125.5	39	...	123	82	174	202	118	180
May	...	...	288	13	...	70	...	126	...	144	143	22	127	116	40	...	125	74	168	188	130	187
June	...	311	257	...	...	...	...	90	426	221	264	...	114	105	380	...	122	49	173	174	122	179
July	...	306	139	237	...	...	...	66	563	216	256	80	95	89	334	...	114	...	158	180	107	168
August	died on 17.2.25	27	...	245	...	...	...	377	487	170	222	465	4	4	288	...	96	197	150	163	97	151
September	...	267	91	239	...	333	...	408	433	160	248	427	...	...	299	...	85	255	176	175	94	183
October	...	236	608	242	...	545	...	847	419	152	257	461	...	...	317	...	...	250	148	177	99	195
November	...	226	557	228	...	488	...	275	383	146	247	446	...	...	308	...	...	226	186	144	97	176
December	...	...	...	...	...	...	...	252	385	124	236	408	...	...	294	...	...	206	179	154	91	36
	241	242	369	1653	237	240	233	262	308	1355	2237	3051	923	800	3089	53	1031	1632	2208	2189	1270	203

Model Dairy, Curepipe—Return of milk yield during the year 1925.—(Continued)

Months	Gerda	Nora	Caudos	Solveig	Eva	Bet	Charlotte	Katrine	Narcissus I	Carnation	Barkly	Hedda	Thistle	Cornflower	Larkspur	Pretoria II	Clara	Narcissus II	Hilda	Pretoria I	Bianca	Total
January	73	255	132	101	129	87	38	180	181	...	...	...	...	...	...	...	...	...	...	...	...	4492
February	34	220	105	179	192	71	35	125	155	97	3	...	...	...	...	...	...	...	...	...	...	3547
March	...	240	75	205	209	85	12	117	172	287	72	75	...	...	...	...	...	...	...	...	...	3820
April	...	211	49.5	191	242	70	...	116	161	253	54	119.5	328	034	...	...	...	...	...	...	...	4160
May	...	213	19	174	259	30	...	121	143	242	29	117	355	239	330	...	...	...	...	...	...	4686.5
June	...	813	...	170	234	...	...	118	134	236	30	117	264	269	472	275	43	32	...	...	...	5691
July	died 21.2.25	211	252	156	287	293	32	112	139	235	6	119	313	271	418	289	812	330	...	...	...	6344
August	...	189	377	135	221	374	220	62	131	224	...	101	261	220	381	266	264	280	332	51	114	7667
Sept.	died 21.2.25	149	379	153	240	362	222	...	142	241	...	93	264	238	380	264	252	254	428	273	359	8575
October	...	...	362	175	252	372	215	...	137	272	...	100	267	243	391	249	240	243	423	254	358	9084
Nov.	...	...	331	170	206	333	175	...	115	253	...	99	250	236	363	222	212	211	371	199	333	8289
Dec.	died	254	279	156	43	340	152	...	93	292	...	95	206	221	344	210	198	195	878	143	337	7759
	107	2157	2868	2058	2457	419	1013	952	1706	2645	195	1038	2600	1972	3082	1847	1522	1546	1927	920	1502	74617

APPENDIX V.

Distribution of Sugar Cane Diseases in Mauritius in 1925.

District	Gumming	Pine-apple Disease	Smut	Root Disease	Red Rot	Leaf Spotting (heavy infestation)	Streak	
							On cane	On maize and other grasses
Flacq	Ten Estates Variety attacked: White Tanna	Three Estates Varieties attacked: numerous	None reported.	One Estate Variety attacked: White Tanna	Four Estates Varieties attacked: White Tanna, D K. 74, Iscambine Senneville M 131 and one unknown	Two Estates Varieties attacked: numerous	None reported	Seven Estates Species affected: Maize (zea mays), Setaria sp, Digitaria sp and Paspalum conjugatum
Rivière du Rempart	One Estate Variety attacked: White Tanna	None reported	Six Estates Varieties attacked: L. 26, L. 57, R. P. 8, D. 130, M. 131, D.K. 74, R. P. 73	Three Estates Varieties attacked: Lonzier, 33, 1474 and D. 130	None reported	One Estate Variety attacked: unknown	Three Estates Varieties attacked: R. P. 8	Two Estates Species of affected: Setaria sp and Digitaria sp
Pamplemousses	One Estate Varieties attacked: White Tanna and D. K. 74	Three Estates Varieties: White Tanna and numerous others	Two Estates Varieties: D. K. 74 and 26	Three Estates Varieties: D. 130, B. 3412, & White Tanna	None reported	Two Estates Varieties: White Tanna, D. 109 and M. 131	None reported	Three Estates and at the Experiment Station, Pamplemousses, Species affected: Setaria sp and Coix edulis
Grand Port	Eight Estates Variety: White Tanna	Three Estates Varieties: White Tanna and numerous others	None reported	Two Estates Varieties: White Tanna and M. 55	Two Estates Varieties: Lonzier & White Tanna	None reported	None reported	Six Estates and in fields of small planters at Old Grand Port Species affected: Maize (zea mays), Digitaria sp, Paspalum conjugatum, Digitaria marginata, D. horizontalis and Setaria sp.
Savanne	Seven Estates Variety: White Tanna	None reported	None reported	Two Estates Variety: White Tanna	None reported	One Estate Variety: White Tanna	None reported	Two Estates Species affected: Paspalum serobiculatum & Setaria sp.
Moka	Five Estates Variety: White Tanna	One Estate Varieties: Numerous	None reported	Two Estates Varieties: B 3412 and White Tanna	One Estate Variety: M 131	One Estate Varieties: Several	Central Experiment Station	Central Experiment Station Species affected: Maize (zea mays)
Black River	None reported	None reported	Two Estates Varieties: D.K. 74 & M 131	None reported	None reported	None reported	One Estate Variety: K.P.8	One Estate Species affected: Setaria sp.
Plaines Wilhems	One Estate Varieties: White Tanna, Striped Tanna and St. Aubin	None reported	None reported	One Estate Variety: M 55	None reported	None reported	None reported

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COLONY OF MAURITIUS
—
ANNUAL REPORT
OF THE
DEPARTMENT OF AGRICULTURE
FOR THE YEAR 1926

No. Rae 1547
16/27

THE HONOURABLE THE COLONIAL SECRETARY.

I have the honour to submit the report on the Department of Agriculture and on the agricultural conditions in the Colony for the year 1926.

PART I

AGRICULTURAL CONDITIONS IN 1926

The weather conditions experienced during the growing and harvesting seasons are summarised in the annexed tabular statement:—

<i>Month and year</i>	<i>Temperature</i>	<i>Rainfall</i>
1925		
November ...	Normal ...	Above Normal
December ...	Normal ...	Above Normal
1926		
January ...	Markedly above normal	Normal
February ...	Above Normal	Considerably below Normal
March ...	Above Normal	Considerably below Normal
April ...	Above Normal	Considerably above Normal
May... ...	Normal	Above Normal
June ...	Markedly above Normal	Normal
July ...	Considerably above Normal	Considerably above Normal
August ...	Considerably above Normal	Considerably above Normal
September ...	Considerably above Normal	Considerably below Normal
October ...	Slightly above Normal	Below Normal
November ...	Normal	Very Considerably above Normal
December ...	Normal	Considerably above Normal

As will be seen from the above summary, weather conditions were, during the year, very abnormal. Cyclonic activity was little in evidence during the summer months, thereby entailing a pronounced shortage of rain. On the other hand, a cyclone occurred late in April and its centre passed close eastward of the Island on the 19th.

Although the strength of the wind was not very great the damage done was, in view of the lateness of the season, very considerable.

Furthermore, the winter season was characterised by abnormally high temperatures with heavy rainfall; as a result, the sucrose content of the cane remained very low and the total production of sugar considerably below expectation.

SUGAR INDUSTRY

The preliminary compilation of factory results for the 1926 crop gave a total of 196 thousand metric tons. The total tonnage of cane ground approximated to 2 millions. Before the cyclone of April 19th, a total turn out of 245 thousand tons could reasonably be anticipated, so that the total reduction is of the order of 20%. It should be added that, with normal weather during the grinding season, the sucrose content of the cane would have been markedly higher and, had the moderate extraction figure of 10.5% of cane been obtained, the actual production would have been about 14 thousand tons larger.

The following figures give the results, for each district, of the preliminary compilation of factory returns, compared with the production of the seven preceding years.

Sugar production in thousand metric tons

District	1926 Preliminary results	1925	1924	1923	1922	1921	1920	1919
Pamplemousses & Riv. du Rempart	44.6	51.86	47.48	42.27	54.93	48.43	59.16	50.63
Flacq	26.3	43.06	39.06	35.51	39.56	33.77	45.35	36.86
Moka	31.0	34.68	30.73	31.34	29.39	28.04	37.58	35.24
Plaines Wilhems	17.7	18.18	18.79	15.01	20.95	14.54	21.36	19.38
Black River	7.2	8.66	8.47	7.17	8.65	6.15	7.57	6.54
Savanne	31.6	39.72	38.10	33.64	35.38	31.71	41.55	43.33
Grand Port	37.6	45.06	42.08	36.61	42.33	34.78	47.30	43.21
Total	196.0	241.22	224.71	201.55	231.19	197.42	259.87	235.19

Yield of Vesou Sugars.—Of the estimated total of 196 thousand tons, 98% will, it is anticipated, consist of vesou sugars, while low sugars will approximately reach 2% of the total. The following table exhibits the progress in this connection for the past ten years :

Year	%Vesou	Year	%Vesou
1917	89.85	1922	97.20
1918	94.50	1923	97.61
1919	94.45	1924	98.34
1920	95.46	1925	98.21
1921	95.98	1926	98.0 (estimated)

During the year, owing to market conditions, many factories strove to produce a proportion of particularly high grade of vesou sugars, locally termed "extra fine." The market advantage of this type of sugar has been about Rs. 0.80 per 50 kilos.

Factory work in 1926—Owing to exceptionally unfavourable weather during the maturing season, the sucrose content of the cane was very low. The average extraction figure for the whole Island is estimated at 10.02. Results for the previous decade are as follows:—

Year	Commercial sugar extracted % cane	Commercial sugar extracted % sugar in cane
1917	10.62	79.5
1918	10.95	80.4
1919	10.42	80.7
1920	10.76	..
1921	9.90	79.7
1922	10.58	...
1923	10.51	79.6
1924	10.28	79.7
1925	10.56	80.1
1926	10.02 (Estimated)	79.5

As compared with other countries the extraction of commercial sugar per cent cane is on the low side thus for the years 1920 to 1926 in Java the mean extraction of commercial sugar per cent cane was 10.74 and the mean extraction of commercial sugar per centage of sugar in cane was 83.0, while in Hawaii for the period 1907-24 the figures were 11.71 commercial sugar extracted per cent cane 89.5 commercial sugar extracted per cent cane. It should however be added that in Hawaii the type of sugar made is refining crystals.

Factories conditions in 1926—The tendency towards centralisation has continued. One factory, Etoile, was closed during the year. The total number of factories at the end of 1926 was thus forty four as compared with fifty-three at the end of 1916.

New sugar machinery to the value of Rs. 1,143,500 was imported during the year, and tramway material to the value of 333,000 rupees.

In relation to new processes it may be mentioned that the Roussel process introduced into one factory during the 1925 crop was operated throughout the year with very satisfactory results in spite of the bad quality of the cane. This process consists essentially in the filtration of the whole of the defecated juice without previous settling. Peck strainers were installed in three factories and gave fair results although some trouble was experienced in some cases. Lafeuille crystallizers were installed in two factories in Moka but have not so far given very satisfactory results, owing to mechanical difficulties in relation to the installation. It is proposed to endeavour to remedy these defects when it is hoped that more satisfactory results will be obtained. Quick running vacuum pumps with evaporators and pans have already been installed in two factories and are giving satisfactory results. The first installation was made on the advice of the Sugar Technologist of the

Department of Agriculture. Further orders for similar pumps have been placed for next year. Trouble was experienced in many factories owing to difficulties consequent on the impure juices which occurred as the result of the unfavourable ripening season. An interesting new phenomenon was the development which was noticed in several factories of masses of gummy substances owing to the rapid growth of micro-organisms resembling *Leuconostoc*. An examination of this organism by the Sugar Technologist and the Bacteriological Laboratory showed however that it was not *leuconostoc* but an organism which apparently had not previously been recorded and which was probably introduced from the soil.

It may be added that the Sugar Technology service of the Department inaugurated three years ago in connection with the College of Agriculture continues to meet with increasing appreciation from planters and the services of the Sugar Technologist have been in constant requisition to advise on matters in connection with the manufacture of sugar. It is hoped that it may be possible to provide for the strengthening of this branch of the Agricultural Department by the inclusion on the staff of an additional assistant with special training in mechanical engineering as applied to the Sugar Industry.

Area under cultivation.—At the end of 1925, the area under cane cultivation approximated to 156,700 arpents (163,497 acres) the decrease on the 1924 figure being about 3,500 arpents. No figures for 1926 are as yet available but it is anticipated that no great change will be in evidence during the year.

Indian Cultivation.—At the end of 1925, the area cultivated in cane by Indian planters approximated to 69,500 arpents (72,531 acres) or 44.4% of the total cane cultivation. Although the proportion of Indian cane to total cane is practically the same as in 1924, the actual acreage cultivated by Indians evinces a reduction of about 3,700 acres owing to the unfavourable market conditions which obtained for sugar during the year 1925.

Disposal of the sugar crop.—The sugar Planter's Syndicate continued operations during the year, controlling more than 80% of the total production of the Colony. The final average price per 50 kilos for 1925 was Rs. 8.90. In 1926, the corresponding figure can only be given in first approximation: it is Rs. 10.05 net per 50 kilos.

As during the two previous years, the bulk of the local sugar production went to the United Kingdom. Figures for the 1925-26 exportation year are as follows: Total export, 231,338 tons, Export to United Kingdom, 223,991 tons. In the year 1926-27 the figures up to December 31st 1926, indicate a total exportation of 82,364 tons of which 77,154 went to the United Kingdom.

Instrumental Cultivation.—Continued progress in this respect is noted. Tractors and ploughs, to the value of Rs. 67,000, were imported into the Colony during the year.

There are now 117 tractors in operation in the Colony, of these 103 are Cletrac, 4 are Renault, 2 are Aras, 1 Bosch, 3 Case, 1 Sanderson, 1 Austin, and 2 Fordson. The Cletrac tractor has to a large extent captured the local market, both the large and small models, being extensively employed. Satisfactory results are also reported from Renault tractors which by their weight and great pulling capacity are particularly well adapted for work on rather rough lands, while planters have also reported satisfactory results from the heavy wheeled tractors of the Case and Sanderson types. There is no doubt that wheeled tractors possess a great advantage, inasmuch as caterpillar tracks are liable to breakage and the repair bill is much less for the wheeled type tractor in consequence. The Austin tractor in use at the Department of Agriculture has given good results during the past five years, it is too light for use with disc ploughs though it does well with two furrow ploughs of mouldboard type.

That the Cletrac has to such a large extent captured the market is because the firm representing this machine took very great trouble in the early days to demonstrate its value and to organise an efficient service of information and practical assistance combined with carrying ample stocks of spare parts for their customers. The business enterprise of American manufacturers in this way is responsible for the popularity of both this type of tractor and also of American ploughs and implements. There has been large expenditure on agricultural implements of this description during the past years which has gone very largely to American firms. In Mauritius at any rate the first requisite for sale is the establishment of efficient service, in its absence there is little prospect of any change in the position. The type of tractor required for Mauritius is of robust description capable of withstanding rather rough field conditions.

The small type of light tractors such as the Beeman and the Service have been found too light for local conditions and have now been discarded.

The position in relation to the type of implement used has not markedly changed in the past two years; popular favour still attaches to the disc plough for uprooting canes and preparing land, while there is some tendency towards the employment of disc plough with a larger number of discs, than formerly; mouldboard ploughs are not in favour mainly as owing to the stony nature of the land, the shares particularly are liable to injury. On the other hand in the experience of the Department of Agriculture mouldboard ploughs are

perhaps safer to use because it is easier to regulate the depth of ploughing. The subsoil of Mauritius is extremely infertile and if in ploughing, any considerable amount of subsoil is mixed with the top soil great loss of fertility results; it is probable that in some cases the use of the disc plough may have had the effect of reducing the yields by going too deep.

In relation to furrowing the large type of double mouldboard plough with extension pieces to the mouldboard continues to hold the field; the most popular mark probably being the Oliver although the Avery's and the German Rud Sack ploughs are also used on a number of estates. The only English ploughs used to any extent are those manufactured by Messrs. Ransomes, Sims and Jefferies which are employed on some estates but are considerably outnumbered by American and German ploughs. As was anticipated the demand for a plough making a square sided furrow has to a considerable extent diminished as planters are realising that a V shaped furrow with a wide base gives quite satisfactory results.

In relation to cultivators various imported types are gaining in favour although many sugar estates still employ the simple heavy form of cultivator locally known as the Daniel which is made without much difficulty in the workshops attached to sugar factories.

So far the use of mechanical devices for the application of fertilisers and the planting of cane has not attained any extension but there does not appear to be any reason why in the future such devices could not be successfully employed.

Irrigation of sugar cane.—Steady progress was maintained during the year on the constructional works in relation to the second Irrigation Scheme of La Nicolière-Midlands. The La Nicolière reservoir was completed during the year and deliveries of water therefrom on a limited scale commenced. Good progress continues to be made in relation to the construction of the larger reservoir at Midlands. In relation to the La Ferme reservoir, considerable complaints were received owing to the failure of water from the reservoir in July, 1925 and a petition was presented to Government by planters in the Black River District asking for assistance. In order to provide a larger quantity of water for this reservoir in future years and to ensure against recurrence of such shortages, important works were undertaken by Government in the diversion of the head waters of the Rivière du Poste into the Mare aux Vacoas reservoir the surplus of which can be utilised to supply La Ferme.

As a result of representations made, a special committee was appointed by the Governor to report on conditions in relation to Irrigation in Black River in June, 1926. This Committee recommended that in view of the difficulties which planters of Black River had experienced, a temporary reduction in the rates charged for water deliveries should be made. The question of the manner in which water is utilised by planters was made the subject of a special report to the Government during the year by the Director of Agriculture; it transpires that methods in use are in some cases uneconomical. The report on the Government Irrigation Station at Medine issued during the year showed clearly that by paying attention to the methods by which water is applied to fields considerable economies were capable of being effected. In order to improve irrigation methods, the Government have under consideration at the present moment a proposal for the appointment of a special instructional officer in connection with the irrigation methods whose services would be at the disposal of planters possessing irrigated properties. It is proposed to despatch the officer selected to Hawaii for the purpose of studying irrigation methods in relation to canes as used in that country, inasmuch as such methods have there attained greater perfection than anywhere else. With the large sums of money at present being embarked in irrigation schemes by the Colonial Government it is clear that for the maximum benefit to be derived therefrom efficient methods of the application of water to lands are essential. It appears reasonably clear in the light of investigations that given satisfactory methods of utilising the water, returns can be looked for under irrigated conditions comparable to those in Hawaii but for this to be achieved some modifications in methods of applying water are essential.

Pests and diseases of the sugar cane.—The principal matter to record in connection with the pests and diseases of sugar cane is the spread of *Phytalus Smithi* in the districts of Moka and Flacq. The occurrence of this pest was first reported on a considerable scale in 1924 and investigations in subsequent years have shown that the contaminated area was very much larger than was originally thought. The existence of this infection has necessitated further organisation on a large scale and the appointment of a supervising officer to deal with the infection in this area. There is unfortunately ground for believing that in one particular case, the original infection may have been due to malicious dissemination. A further small area of infection was also detected at Sebastopol in Flacq and at Phoenix in Plaines Wilhems while a new infestation was also found at New Grove in Grand Port. To assist in the control of the pest a special Advisory Committee has been appointed with the Director of Agriculture as Chairman. Among additional work, the regular inspection of all uninfected areas with a view to the early detection of fresh centres is being undertaken. It is clear that with the multiplication of centres of infection and with the very considerable traffic which takes place over the roads of the Island and also by the Railway considerable facilities now exist for the spread of the pest and it is to be feared that it may be but a question of time for practically the

whole Island to become infected with these insects. On the other hand operations in the Pamplemousses district and also in Grand Port have shown that by systematic application of the methods hitherto in force combined with the dissemination of the parasitic wasp (*Tiphia paralella*) a complete control can in course of time be established as shown by the fact that the central area in Pamplemousses district which was the original focus of infection is now practically free from the pest. Various new methods have continued to be experimented with for the control of the insect including the application of Paradichlor and Calcium Cyanide but unfortunately these have also given negative results in relation to *Phytalus*. It is however to be remarked that experiments with the "Gros Moutouc" (*Oryctes tarandus*) which is a serious pest to cane in certain districts show that Calcium Cyanide may have a useful application in relation thereto. Sporadic attacks of *Lachnosterna* (*Rhizotrogus pallens*) and attacks of the moth borer of some importance were recorded on a number of estates, while outbreaks of locust were also recorded on two estates.

In relation to fungoid diseases, gumming disease was again found widespread throughout the Island but not usually to a serious extent. Pine apple disease was a frequent cause of destruction of cane cuttings. Red rot was found on nine estates usually not in a serious form. Streak disease was found largely on different estates but it is by no means clear as yet to what extent damage may be attributed to it; progress in this direction is being closely followed. Root disease was reported on five estates. The position in relation to this malady remains obscure, but in all cases so far examinations have shown that it appears to be associated with unfavourable cultural conditions.

The Plant Inspection service in relation to cane diseases was maintained throughout the year and 108 visits of inspections were paid. The institution of this service has enabled a much more close supervision to be obtained of disease conditions than formerly existed.

Investigations in relation to the Sugar Industry.—The ordinary investigations carried out by the Department of Agriculture have been continued comprising field trials, cultivation, manuring and irrigation of cane. As previously noted the report on the investigations carried out in relation to the irrigation of cane was published during the year. The main conclusions of these investigations summarised at the end of this report are reproduced below:—

Summary of Conclusions regarding Irrigation of canes.

- " 1. The rainfall in Black River amounts in average to 32 inches p.a. but only about 60 per cent can be regarded as effective. The majority of the precipitation occurs between January and April but it is fallacious to assume that irrigation can be entirely dispensed with during these months.
- " 2. The quality of the irrigation water from La Ferme is thoroughly satisfactory.
- " 3. For effective irrigation great attention must be paid to systems and methods, the most satisfactory system at present devised is the Hawaiian furrow system which comprises planting in continuous level furrows and irrigation over short lengths from laterals.
- " 4. For every field under particular conditions, there is a definite minimum quantity of water capable of being applied to it. This minimum will depend on the character of the soil and the manner in which the field is laid out and the water applied.
- " 5. In applying water to a field it is most economical to work with relatively large heads as this lessens absorption, while there is little risk of loss by wash if application in level furrows is resorted to.
- " 6. There is nothing to be gained by irrigating canes to a greater depth than the minimum. Quantities of water applied in excess of the minimum are lost to the plant.
- " 7. The intervals between irrigation profoundly affects growth. During the period of most active growth weekly irrigation gives markedly the best results and lengthening the intervals between irrigation leads to diminished yields.
- " 8. The season of planting affects returns as virgins very profoundly and to a less extent subsequent ratoons; the best season for planting in Black River is from May to August.
- " 9. The growth of the cane is at its maximum between January and May, during this period 74% of the crop is produced, consequently it is between these months that the demand of the cane for water is at its maximum.
- " 10. Soil moisture at Médine after irrigation rises to 28.6 per cent. In the cool months it falls to about 18 per cent in 20 days, consequently when cane growth is at its minimum irrigation may be reduced to once every three weeks without damaging the crop.
- " 11. From a study of the results, schemes for watering of plant canes and ratoon canes have been drawn up. Given economical and soundly devised systems of application, it appears that Mr. Harriott's original estimates of the duty of water in Black River were about 10 per cent too low. His estimates of the probable yield of canes were approximately correct.
- " 12. Surface cultivation of virgin canes until the period when the plants cover over is shown to be remunerative. Surface cultivation of ratoon canes in which the straw has been left on the land does not pay. Deep cultivation of the interlines of ratoon canes is remunerative.

“ 13. On lands which have not been cultivated for long periods applications of natural or artificial fertilizers, lime and molasses, are not remunerative.

“ 14. Certain cane varieties stand out as preeminently suited to irrigation conditions.

“ 15. The best results in relation to the arrest of water before reaping appear to be obtained when water is stopped about 30 days before the harvest.

The main results achieved in relation to experiments with cane varieties, manuring canes, cultivating canes and some other minor points were prepared for publication towards the end of the year. In relation to the manuring of canes some results of importance have been recorded, the chief among these being the fact that nitrogenous artificial manures specially when applied to virgin canes may frequently be unproductive of commensurate increase in yield, owing to the natural high fertility of the soil and the current practice of manuring heavily with pen manure (Fumier) and factory residues. It also appears that the common practice of dividing the doses of artificial manures may not be as beneficial as is ordinarily supposed. Laboratory investigations have shown that nitrogenous manures when applied to lands already rich in Nitrogen tend to have their nitrogen reverted to the organic form or else lost as gaseous nitrogen. Laboratory investigations have also shown that under these conditions Phosphoric acid specially when applied as Superphosphate may also become reverted to the organic form and made unavailable to the plant.

In relation to cultivation, it has been shown that thorough tillage by the plough may under suitable conditions produce considerable increases in yield but that great care is necessary to prevent ploughing being carried too deep as otherwise infertile subsoil may be brought to the surface which may lead to serious temporary loss of fertility. Previous observations in relation to molasses have been confirmed by subsequent experiments while it has further been shown that these increases are not seen when the natural fertility level of the land is very high. It seems not unlikely that in some cases the effect to be ascribed to Potash in molasses is higher than was at first thought.

Investigations in relation to the storage of fumier have been carried to a conclusion and indicate that losses in the storage of fumier may be greatly reduced by compaction and covering. The common practice of adding molasses to fumier greatly increases the speed of decomposition and the available plant food but also augments the loss of nitrogen, this may however be compensated for by the more rapid and by the more thorough manner in which the organic matter is disintegrated. Measurements in the rate of growth of cane were continued and brought to a conclusion. They demonstrate that throughout the Island the principal months of growth are January, February, March and April. Other investigations have comprised the commencement of a series of tests on the fuel value of various woods and of the calorific value of “ bagasse ” of different varieties of cane.

General Conditions in relation to the Sugar Industry.—The period of low prices which prevailed during the crop of 1925 and the earlier part of 1926 combined with the effects of the cyclone which occurred on April 19th 1925 have caused the sugar industry to pass through a period of severe crisis. After the cyclone, representations were made to the Government asking that assistance might be afforded to the sugar industry by means of a loan. After considerable discussion the proposal was acceded to by the Government and arrangements made to finance a loan of 5,000,000 rupees to be distributed as an export bonus on the sugar of 1926 crop and be repaid by instalments recovered by means of a special export tax to be imposed in subsequent years. Following on these proposals the Government put forward a suggestion that a conference of sugar producers should take place in 1927, with a view to discussing the economic situation of the industry. Towards the end of the year the absorption of the greater part of the visible surplus of the world's sugar stock combined with the policy of restriction of output instituted by the Cuban Government had exercised sufficient effect on market conditions to improve materially the position, and in consequence the outlook may now be said to be more hopeful.

SUBSIDIARY AGRICULTURAL INDUSTRIES

As the result of the depression which has ruled in the sugar industry during the past two years greatly increased attention has been devoted to the question of fostering the development of subsidiary industries. Government policy has consistently favoured these efforts and encouragement and assistance have been forthcoming wherever they could usefully be given. It is believed that by the encouragement of private efforts there are greater chances of success than by Government demonstrations on a large scale. So far the industries which have shown marked progress are the fibre industry, the tobacco industry, the production of industrial alcohol and the production of vegetable oils, while towards the end of the year definite proposals came into being for the development of a fruit preserving and canning industry. It seems not unlikely that to this list can ultimately be added the cultivation of vanilla, coffee and the production of essential oils.

Mauritius Hemp.—Quotations for prime were in the neighbourhood Rs. 415 during the first weeks of 1926 but declined steadily to Rs. 320 by the end of the year.

The export for the past ten years has been as follows :—

Year	Bales	Year	Bales
1917	5,647	1922	3,120
1918	1,974	1923	2,400
1919	10,139	1924	4,987
1920	3,500	1925	8,633
1921	1,150	1926	11,477

There are four bales to the metric ton.

The outstanding event of importance during the year was the organisation of the Mauritius Hemp Syndicate following the lines indicated in the report for 1925. This Syndicate has for its object the standardisation of the produce of the Mauritius Hemp Industry together with the improvement of methods of packing and marketing. The Syndicate have received a grant of Rs. 100,000 from the Government and with this they are erecting a central Fibre Factory in Port Louis where it is intended that the crop of the Island will be graded and packed. As a continuation of the efforts made, the Syndicate during the year succeeded in establishing a series of standard grades and getting them accepted by fibre dealers in London.

The building for the syndicate's factories was unfortunately lost on the Cawdor Castle, which was wrecked in the middle of the year, and could not be replaced until December; in consequence the actual operations of the Syndicate have been delayed. It is hoped that ultimately the Syndicate may be able to achieve the co-operative marketing of the Mauritius fibre crop on the same lines as those of the Sugar Syndicate although a large measure of co-operation in this matter will not be achieved at the outset. In accordance with the agreement whereby a Government grant in aid to the Association was provided, the Director of Agriculture was nominated to represent the Government on the Board of the Syndicate. Sisal continue to be produced on a small scale in the Island but neither the Government Corona Fibre Machine nor the privately owned Robey Machine was operated. On the other hand, samples of sisal shipped by the Government were very highly reported on by the firm to whom they were consigned and it would appear that Mauritius is capable of producing sisal which can compare in quality with the best types of Kenya and Tanganyika sisals. It is unfortunate that in all the efforts to grow sisal in the Colony on a large scale, failure has so far resulted owing to insufficient attention to the natural requirements of the plant.

During the year, mainly through the initiative of Mr. Francis Lincoln, a well known fibre producer of Mauritius, experiments were made in England with a view to producing a fabric from Mauritius Hemp suitable for sugar bags, filter presses, &c. A considerable measure of success has attended the experiments and a new and important method of utilisation of the locally produced fibre seems possible as a result.

Tobacco.—Considerable development has taken place in relation to tobacco cultivation during the year. On my return from leave at the beginning of 1926 it was found that a considerable quantity of air cured yellow leaf had been produced both on the experimental plots of the Department and also by private growers and it was decided to attempt a commercial experiment as to whether this could be made into bright leaf cigarettes that would command a sale locally. This was accordingly cut at the Government Tobacco Factory made up into cigarettes and placed on the market under the name of DODO B. They immediately found a ready market and in a few weeks' time the whole supply was exhausted. The results were so satisfactory that permission was obtained for starting experiments on flue curing tobacco and authority given for the erection of a flue curing barn at Reduit. This was completed in July and at that time samples of both Blue tobacco and Constant were cured, and gave satisfactory flue cured leaf. Samples of flue cured, air cured and fire cured tobacco were submitted to Brokers for report with such encouraging results that the effort is now being made to organise an export trade. In May 1926 The British American Tobacco Company opened a factory in Port Louis and at the same time commenced independent experiments on the production of flue cured tobacco. For this purpose they imported the services of two experts who obtained results similar to those obtained by the Department of Agriculture. Thereafter the Department of Agriculture and the British American Tobacco Company working in cooperation have conducted a campaign in favour of tobacco cultivation and curing by the flue curing process. A special meeting of the Chamber of Agriculture was held in October at which the whole question of tobacco cultivation was discussed and explained and thereafter developments on a considerable scale commenced. By the end of the year flue curing barns had been erected on eight estates and a number of others were in course of erection.

To facilitate developments the Government repealed Ordinance No. 19 of 1890 which imposed a land tax of Rs. 160 per acre payable in advance on land cultivated in tobacco, and appointed additional staff to assist in advising growers. In October the area under cultivation of tobacco was approximately 500 acres, by the end of the year it is estimated that the area had increased to 800. The Government Tobacco Factory continued operations during the year and sold altogether some 6,000 kilos of tobacco.

Simultaneously local manufacturers extended operations while two new factories were opened. By the end of the year importations of Black tobacco from Bourbon had ceased the whole of this type of product which still comprises about 40 per cent of the tobacco smoked in the Colony being produced locally, thus fulfilling the object which Sir Hesketh Bell G.C.M.G. had in view ten years ago when the question of tobacco cultivation was first suggested by him.

In October the British American Tobacco Company commenced purchasing yellow leaf from planters but had not at the end of the year commenced the output of cigarettes made from local tobacco; it is however anticipated that this will shortly take place. The operations of this Company in manufacturing cigarettes from imported leaf necessitated a revision of the Customs Tariff in October in order to compensate for the loss in revenue to be anticipated by the change of position, while in order to provide for the ultimate contingent necessity of imposing an excise on locally produced tobacco a standing Committee consisting of the Receiver General, the Collector of Customs and the Director of Agriculture was appointed by His Excellency the Governor to watch and periodically report on the position, with a view ultimately to submitting the necessary recommendations for taxation. To cope with the extra work necessitated by these developments a separate Tobacco Division of the Department of Agriculture was inaugurated under the charge of Mr. Geoffrey Corbett, Agricultural Superintendent Rodrigues, seconded for the post after training, and temporary staff was allocated for this division. To provide for the means of continuing experiments and furnishing supplies of seed of satisfactory quality to growers an area of 20 acres was assigned to the Department of Agriculture at Beau Bassin on lands formerly occupied by the Poor Law Department. The services of the officers of the Tobacco Division have been in continuous requisition during the whole of the latter part of the year and at the time of writing the prospects of the development of the industry into one of considerable magnitude appear to be very bright indeed.

Alcohol.—The production of alcohol for the past ten years according to Treasury returns is as follows:—

1916-17	...	1,883,607 litres	1921-22	...	1,749,994 litres
1917-18	...	1,602,414 "	1922-23	...	496,237 "
1918-19	...	1,529,315 "	1923-24	...	523,892 "
1919-20	...	1,666,000 "	1924-25	...	638,196 "
1920-21	...	1,900,000 "	1925-26	...	490,113 "

Of the 1926 production 503,113 litres at 19° Cartier were intended for human consumption and 77,570 for use as denaturated and power alcohol.

The diminution in the official production of alcohol, consequent on the liquor laws promulgated in 1922 is, apparently, attended with a considerable clandestine production and, as a result, a Commission of enquiry was appointed by the Government with a view to investigating the advisability of remodeling the restrictions on alcohol production.

During the year, a new and up to date distillery annexed to the Sugar Factory at Médine started operations, while a smaller plant was erected at Richelieu. As a result, the price of denaturated alcohol, for domestic purposes, fell from R. 0.75 per litre to R. 0.25 and frequently less. Power alcohol is now being produced by the same distillery and is already commencing to be employed on a certain scale as a substitute for petrol in motor lorries.

Oil Crops.—A considerable impetus has been given to the cultivation of oil crops principally pistache, by the opening of a new Oil Mill by the Innova Refinery Company which has installed an oil extraction and refinery plant of modern type and has entered into contracts with a number of estates for the cultivation of areas under Pistache and the purchase of the crop. As a result there has been a marked increase in the area under cultivation of this crop which grows well on most lands of Mauritius and is well suited to cultivation as a rotation crop with cane and even in the interlines of young virgin canes. If the enterprise prospers as it deserves an important step will have been taken towards the firm establishment of the cultivation of this staple.

The Fruit Canning and Preserving.—During the year at the instance of the Minor Industries Development Committee in Plaines Wilhems a series of commercial experiments were carried by the Honourable J. M. Brodie O.B.E. on the commercial manufacture of guava jelly, the produce being shipped in England for experiment sale. The results achieved were so far satisfactory as to warrant further continuation of these efforts. During the same period attention commenced to be turned to the possibility of producing pine apples for preserving and export. It was formerly held that the Mauritius pine was too small in size and indifferent in flavour to offer much attraction in this direction but it soon became evident that this was merely due to the indifferent manner in which the plant was cultivated locally. As a result of the increased attention given to this question a marked improvement took place during the year in the types of pine coming on the local market. Simultaneously a group of gentlemen locally began the investigation of the possibility of starting a small syndicate for the cultivation of pines and other fruits and for the manufacture of preserved pine apples, jams and jellies. By the end of the year matters had advanced sufficiently far

to enable discussions to take place between the Department of Agriculture and the Gentlemen interested with a view to ascertaining what steps could be taken towards assisting developments and it has been provisionally decided to endeavour to arrange for the despatch to South Africa of an officer of the Department with a view to investigating on the spot the possibilities contained in this line of development. If further investigations bear out the ideas at present held there appears to be every prospect of steps being taken towards the establishment of an additional industry in the Colony.

Vanilla.—No actual progress is recorded in relation to the production of vanilla. At the same time there appears to be scope for appreciable developments. To my own mind it seems highly probable that the existing severe legislative restrictions on the cultivation of the crop are merely having the effect of strangling the industry.

Coffee.—Small areas of coffee are cultivated in the Colony entirely for local consumption. The higher lands are well suited to the crop and provided resistant varieties are grown the plant can be successfully cultivated. Some interest in this question is now being shown and 2,200 plants of coffee have been distributed by the Agricultural Department during the year. There is no very obvious reason why in due course a not unimportant industry might not develop.

Tea.—No progress can be reported in this industry. The competition of foreign teas, especially Ceylon's, renders the development of the local industry problematical, in the view of the high cost of production which local teas probably attain.

Coconuts.—No particular interest was manifested in this crop during the year. All the coprah exported from Mauritius is the produce of the Oil Islands (Dependencies of Mauritius) which turn out 8 to 9 hundred tons yearly on the average.

Food Crops.—A certain amount of interest continued to be maintained during the year on the production of food crops. In 1925 maize was grown on about 2,600 acres and manioc on 3,500 acres approximately. Vegetable gardens occupied about 3,500 acres. Little change occurred under the two first heads in 1926 but vegetable gardens continued to increase and the production of vegetables in the Colony during the past year has been one of the largest on record. It may be noted that the cultivation of Teneriffe onions is gaining in popularity to some extent.

Live Stock.—Importation of cattle from Madagascar in 1926 numbered 5,555 heads of a total value of Rs. 375,207.

A perceptible recrudescence of interest in the local cattle breeding industry was manifested during the year, while attention continues to be paid to small stock. The Mauritius Stock Breeders Association contemplate the introduction into Mauritius of the Angora goat from South Africa, and it is also intended to introduce the Charolais breed of cattle.

The Government Dairy at Curepipe continued to work satisfactorily, and several enquiries have been received from persons desiring to make similar installations.

The Stock Farm of the Department of Agriculture was maintained. The new breeds of cattle introduced through the agency of this institution have now had a perceptible effect on the local breeding industry, as was very clearly shown in the excellent series of exhibits of cross breed animals which were shown at the Agricultural Exhibition in October.

Proposals for further assisting the local breeding industry were considered during the year by the Stock Breeders Association and the Board of Agriculture, one of these proposals comprising the establishment of a central fund for assisting local breeders. In addition the question was considered of the improvement of the control at present existing in relation to the slaughter of cows and heifers of the milch breed under the age of five years as provided by Ordinance No. 1 of 1918 and regulations made thereunder, which in spite of vigilance are apparently being evaded to a considerable extent. The general question of the milk supply of the Colony was considered at a special meeting of the Societe des Chimistes held during the year and a committee appointed to report further on the question.

Animal Diseases.—The campaign against surra was maintained on the lines previously established; the number of animals examined and the number of cases detected in each of the past four years is shown below:

Year	Number of animals examined	No of infected animals detected	Percentage of infected animals on total examined
1923	5,968	150	2.5%
1924	5,959	37	0.5%
1925	7,330	59	0.8%
1926	7,506	44	0.6%

In 1924 out of 37 animals 6 were equines, in 1925 out of 59 infected animals 13 were equines and in 1926 out of 44 infected 4 were equines. In accordance with the regulations all cases of surra on equines were destroyed on detection.

The results of the campaign have on the whole been regularly successful, the local epidemics which were of frequent occurrence previously have now entirely disappeared and the disease no longer constitutes a serious annual source of loss.

No outbreaks of Piroplasmiasis were recorded during the year. Attention became focussed on the prevalence of bovine tuberculosis during the year. The disease is still widespread in breeding herds, although owing to the conditions under which cow keeping is practised, it is only present to a very minor degree in milch cattle. It however proves a serious impediment to the utilisation of local animals for slaughtering and for working purposes. In this connection plans were put forward for a systematic campaign for the eradication of the disease which will it is hoped be successfully inaugurated during 1927.

The Government Veterinary Surgeon paid a visit of inspection to Reunion and Madagascar in April and May in connection with the prevalence of swine plague and anthrax in these two places, with a view to safeguarding against the introduction of these diseases to Mauritius. As a result it was found necessary to prohibit the introduction of pigs from Reunion. The Government Veterinary Surgeon also proceeded to Rodrigues in October with a view to investigate an obscure malady of goats with high case mortality in that dependency. Subsequently the importation of goats from Rodrigues was as a temporary measure prohibited.

The various animal quarantine requirements were strictly enforced during the year, as a result of this measure taken, Mauritius has now been free from any instance of introduction of animal disease during the past five years, while general health conditions in relation to stock with the possible exception of tuberculosis on breeding herds, are on the whole more favourable now than at any time during the past 24 years.

AGRICULTURAL EDUCATION

The Mauritius Agricultural College continued its operations during the year, which are reviewed in a separate report. The value of this institution as a training ground for future employes in the agricultural industries of the Colony is indubitable, and it is certain that in due course the effect thereof will make itself felt in an increasing degree. On the majority of estates at the present time are to be found chemists and factory employes who are either past pupils of the College or its forerunner the School of Agriculture or who have passed the examinations prescribed for the registration of Agricultural Chemists.

Examination for the registration of Agricultural Chemists were held in July and in Sugar Technology for the certificate of the City and Guilds of London Institute in May.

In so far as elementary agricultural education is concerned, by direction of the Governor the whole system was discussed at length between the Director of Agriculture and the Superintendent of Schools during the year, and as a result a scheme was put forward for the inauguration of a Farm School, the extension of the apprentice system, the extension and further systematisation of school garden work and provision for regular training in nature study of pupils at the Teachers' Training School. These proposals have since been submitted to the Secretary of State.

In so far as the instruction of the small planters is concerned, proposals were approved during the year for the appointment of three additional agricultural instructors to be recruited from graduates of the College of Agriculture.

CO-OPERATIVE CREDIT SOCIETIES

There is little progress to note in relation to the co-operative credit movement which is reviewed in a separate report.

AGRICULTURAL SHOWS

An Agricultural and Industrial Exhibition on a considerable scale was organised and held at Line Barracks, Port Louis, on October 1st, 2nd and 3rd. It was the first of the large exhibitions which under the approved Show policy it is proposed to hold at intervals in alternation with smaller shows in the districts. Provision was made in the Prize List for all classes of produce and all forms of industrial activities in the Colony, a special commercial section enabled a large number of mercantile firms to mount special displays, while exhibits were also displayed by a number of Government Departments. The Show which was fully reported in a special illustrated number of the Revue Agricole proved a great success, and has had valuable results both in increasing interest in various forms of agricultural production, in disseminating information and stimulating trade, and is admitted to have been by far the best ever held in the Colony. The Show was opened by His Honour Sir Allan Grantham C.M.G., Officer Administering the Government, and was attended by upwards of 20,000 people.

RODRIGUES

There is no particular event of importance to record in relation to this dependency. The work of the Experiment Station is reviewed in a separate section.

PART II.

WORK OF THE DEPARTMENT OF AGRICULTURE DURING THE YEAR 1926.

Staff Changes.

Dr. H. A. Tempany returned from leave of absence in England on January 20th.

Mr. D. d'Emmerez de Charmoy, Assistant Director, proceeded to Réunion on two months leave of absence in March.

Mr. E. F. S. Shepherd B.S.A., Botanist and Mycologist, acted as Assistant Director and Mr. W. H. Edwards D.I.C. as Entomologist, Mr. A. Moutia as Lecturer in Entomology.

Mr. L. Baissac resumed his duties as Sugar Technologist in July.

Mr. F. E. Lionnet Ec. Vet. was absent from the Colony on special mission to Réunion and Madagascar in April and May, during his absence Mr. R. Bradshaw officiated as Government Veterinary Surgeon.

Mr. R. Laval, Assistant Chemist, died in November and Mr. R. Lincoln B.A. Cantab. was appointed to succeed him.

Mr. E. F. S. Shepherd B.S.A., Government Botanist, proceeded to England on 10 months leave of absence in December. Mr. W. H. Edwards D.I.C. was appointed to act as Government Botanist and Messrs. A. Moutia and J. Vinson respectively as Lecturer in Zoology and Entomology and Assistant in the Entomological Division.

Mr. W. Bourdet relinquished his appointment of Assistant Inspector Co-operative Credit Societies in October and resumed duty as acting Fifth Class Clerk.

Mr. J. V. Ramlowat was appointed to act as Assistant Inspector Co-operative Credit Societies in June.

The operations of the various divisions are reported in the following pages.

ENTOMOLOGICAL DIVISION

The Entomologist reports as follows:—

During the absence on leave of the Entomologist, Mr. W. H. Edwards, Lecturer in Entomology in the Agricultural College, acted during two months as Entomologist.

Campaign against Phytalus Smithi.—As in previous years, the results for the 1924–25 campaign have been summarised in a special report printed and distributed amongst those concerned.

By the end of the year the presence of the pest was detected at three different localities viz: Sebastopol, Phoenix, including Highlands Estate, Trianon Estate and Phoenix Village, and Montagne Longue including Industrie Estate and Valleton Estate.

At Sebastopol it was ascertained that the pest had spread over a superficies of about one thousand acres, from Sebastopol village to Etoile camp on one side and from Sebastopol old mill to Mountain Jacquot on the other side. The infection was noticed to be very severe at the vicinity of the Railway Station on a superficies of about 50 acres. Immediate measures were adopted with the results that within two months about 4 millions beetles were destroyed.

At Phoenix, the main centre of infection is situated on that portion of land on the right hand side of the branch road leading to the Vacoa Military Camp.

At Highlands and all over the village the infection is of a very light character, so that there is ground to believe that the pest will be kept under strict control at this new centre.

The discovery of the pest at Sébastopol and Phoenix coupled with the extension of the Moka district infection has necessitated the appointment of a resident Officer at Sébastopol and the appointment of a Travelling Officer for the Flacq-Moka-Plaines Wilhems districts, whose duties assist in the general supervision of the whole campaign of destruction in those three districts.

At Industrie and Valleton, the infection is neither intense nor widespread and may have originated from Pamplémousses through extensive traffic between these two localities.

At Joli Bois and Pamplémousses although the number of insects destroyed is practically the same as in previous years the position is satisfactory as a wide area has been cleared of the pest and except at a few spots the spread of the insect is kept under control.

Experiments on the control of insect pests.—Again in 1925 experiments were conducted at Pamplémousses and Joli Bois for the control of *Phytalus* grubs with Calcium Cyanide and Paradichlor and Petrol, the results have so far proved of no practical value.

Lachnosterna grubs.—An outbreak of this insect (*Rhizotrogus pallens*) was observed at Bassin Estate by the end of December and another one at Ebene Estate on Béga lands. The collection of the beetles at night proved successful for the control of this indigenous grub pest.

The following is a list of insect pests which have been noticed affecting, more or less seriously, various crops.

On Tobacco.—*Spodoptera mauritia*—*Chloridea obsoleta*—*Prodenia litura*.

On Onion.—Thrips.

Sweet potato.—*Elachista* sp :

Artichoke.—*Porbe Bjerkandrella*.

Sugar cane.—*Leucania unipuncta*.

Various plants.—*Acreidium* sp.

Solenopsis geminata.

Tiphia Parallela.—This wasp was again liberated in fair number at Beau Bois and Circonstance with a view to controlling the *Phytalus* pest. Up to now there is no evidence that it has established itself and fresh attempts will be made early in 1927 under the direct supervision of this division.

A good deal of time was spent in issuing verbal and written advices in connection with the control of harmful insects. Visits were paid by officers of this division and spraying carried out by them on several occasions. About eight sprayers were out during the year on loan to growers for the treatment of their crops. Insecticides such as Paris Green and Arsenate of lead which are not readily obtainable on the local market were supplied free to small planters.

Two outbreaks of locusts were observed at Trianon and Côte d'Or and adequately dealt with. Several outbreaks of the chicken flu occurred during the year in various localities. The treatment prescribed proved effective in every case.

Investigations on Animal Parasitology and on the Diseases which affect farmyard animals.—As in previous years this division has conducted special researches in connection with diseases affecting small farmyard animals.

About 75 post mortem examinations were made for the public with a view to ascertaining the causes of the mortality which occurred in each case and which proved to be as follows:—

Fowls.—White diarrhea of chickens was ascertained to be due in most cases to Coccidiosis infection and in a lower degree to bacterial infection.

In a few cases the following Protozoa were suspected to be the cause of the ailment, viz:—*Lamblya*, *Blastocystes* and *Amœba*.

Pernicious Anaemia.—About 5 cases were recorded of this rather rare disease which was noticed for the first time in the Island. The fungus which invades all the internal organs of the diseased birds was identified as belonging to one of the numerous parasitic species of *Aspergillus*.

Septicemia.—Besides fowl cholera which has again prevailed sporadically this last summer, many cases of this type of disease were recorded; the mortality could not be ascribed to any specific organism.

Worm infection.—Mortality from worm infection was specially noticed on 4 to 6 week old chickens and was found to be occasioned chiefly by the stomach spiraptera.—*Dispharagus nasutus* and *Tœnia* sp.

Typhoid of Birds (Typhose).—A series of post mortem examinations of chickens suffering from a light attack of chicken pox made at the end of the year would prove that these birds died from fowl typhoid. Although the clinical symptoms of the disease, together with the post mortem lesions and the nature of the micro-organism detected lead to this conclusion, a further study of the biochemical reactions of the bacterium is essential before a definite statement can be made. Heavy losses due to this disease have again in 1925 been sustained by various small breeders.

Ducks-Neuritis.—This disease which affects as a rule ducklings was in 1925 responsible for the mortality of a large number of adult birds. No specific organism could be detected in the cases observed.

Enteritis.—Newly hatched ducklings were noticed to have died from acute enteritis occasioned by a protozoa of the Ciliate group of the genus *Urenoma*. This protozoa has been observed so far in one case only on human being (case of dysentery).

Rabbits.—About 10 cases of Paraplegia (paralysis of the hind limbs) which ended by the death of the animals were observed. This disease which does not seem to have ever been described was noticed for the first time in 1925 and seems to have a tendency to spread.

Septicemia.—Spontaneous septicemia occurred at the poultry run and within a few days wiped out the whole rabbitry. Numerous cases of ear-mange were observed in different localities.

A great number of slides (faeces and blood smears) were submitted for examination by the Veterinary Division for detection of parasites.

Lamblyasis, and Coccidiosis were detected on cattle; Blastocystosis and Ankylostomiasis on dogs.

Examinations of Plants and Fruits.—109 inspections were made in connection with the importation of fruits, plants, cuttings, tubers, consisting of 263 cases of fruits and 142 parcels of tubers, cuttings and lime plants.

Contribution to the Revue Agricole.—The officers in this Division contributed various articles dealing with insect pest and farmyard animals.

Education.—The Entomologist delivered a series of lectures at the College of Agriculture in Animal Husbandry (Section Breeding of Farmyard Animals).

CHEMICAL DIVISION

The Chemist reports as follows:—

I. Staff.—The provisional appointments of Mr. R. Laval and of Mr. F. Berchon as Assistant Chemist and as Scientific Assistant respectively were made permanent in February.

I must regret having to record the death of Mr. R. Laval, who died after a short illness on November 20th. I wish to place on record my appreciation of the willing and able manner in which he performed his duties.

Mr. R. Lincoln B.A., who lately graduated at Cambridge University, has been appointed to the post of Assistant Chemist.

II. Laboratory Accommodation.—An old lean-to shed which was formerly used as a fume cupboard and distillation shed has been removed in order that a window could be made in the wall of the main laboratory. A new shed for the preparation of distilled water has been built, and a fume cupboard has been constructed in the laboratory.

Plans have been prepared for the installation of gas in the various laboratories of the Department. The materials necessary for this installation have been received, but have not yet been installed. It is expected that the work will be started in the near future.

III. Investigational Work

(a) *LOSSES OF NITROGEN DURING THE STORAGE OF FARMYARD MANURE.*—This investigation was carried on from the previous year. In this series of experiments all the tanks were covered, but as before, the manure in two was compressed, and in the other two it was not. To one of each pair, molasses was added to find its influence on the rate of fermentation, and its influence on the losses of nitrogen in the manure. As a result of these investigations, it has been shown that increased losses occur when molasses is applied to the manure heap, but that at the same time the rate of decomposition of the straw is greatly increased. The results of this work have been prepared as a bulletin, which will shortly be sent to the press.

(b) *AVAILABILITY OF PHOSPHATES IN SLIGHTLY ACID SOILS.*—A considerable number of samples of soil taken from various parts of the Colony have shown a slightly acid reaction, and it would seem that in general the soils have a pH. value between 5.0 and 6.3.

The availability of phosphates, in the form of phosphatic guano and of superphosphate, in a soil of this description was tested, both with and without the application of lime. The results of this set of experiments seem to indicate that both forms of phosphatic manure are equally available, and that the application of small dressings of lime does not increase the availability. In all the experiments only about 7% of the phosphorus applied in the fertiliser was available at the end of a period of two months. Both the phosphatic guano and the superphosphate of lime brought about a reduction in the hydrogen ion concentration of the soil.

The results of this investigation were published in the *Revue Agricole*. Further investigation into the availability of phosphates is under consideration.

(c) *FUEL VALUES OF DIFFERENT WOODS.*—An investigation into the fuel properties of fourteen samples of wood was carried out, those with the highest calorific values being: *Eucalyptus tereticornis*, *Acacia manille*, *Casuarina equisetifolia* (Filao), *Aphloia theiformis* (Fandamane), and *Tetranthera monopetala* (Yatis). Those with the lowest values were:—*Tetranthera laurifolia* (Bois d'oiseau) and *Eugenia jambolona* (Jamblon).

A full report of the fuel properties has been prepared for the *Revue Agricole*.

(d) *CALORIFIC VALUES OF BAGASSE.*—Samples of bagasse were taken from mills in different parts of the Colony, and on each sample the following estimations were performed:—moisture, sucrose and calorific value.

In addition to these, samples of bagasse were taken from canes, crushed in the Experimental Mill at the Central Experiment Station, in connection with the cane variety experiments conducted by the Agricultural Division. The main object of this investigation is to find out what variations occur in the calorific value of the fibre content of the different varieties of canes. Consequently the bagasse was well washed to get rid of all the sugar and then dried. The estimation of the calorific values is at present in hand.

(e) ANALYSIS OF MILK FROM THE GOVERNMENT DAIRY, COREPIPE.—The periodical analysis of milk from this dairy was carried out during the whole year, and in all 176 samples were analysed. As in the previous year, the samples were tested for:—(a) Butter fat, (b) Solids not fat, (c) Lactose. The monthly averages for both morning and evening milk are given in the following tables.

Morning Milk

Month	January	February	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
No. of samples	6	8	9	7	9	8	9	9	7	5	6	7
Fat ...	3.0%	3.05%	3.05%	2.95%	3.1%	3.2%	2.08%	2.65%	2.8%	2.8%	2.95%	3.6%
Solids not fat	8.03	8.55	8.55	8.5	8.5	8.4	8.4	8.3	8.4	8.5	8.5	8.4
Lactose ...	4.45	4.40	4.3	4.4	4.4	4.4	4.55	4.4	4.3	4.3	4.3	4.3

Evening Milk

No. of samples	6	8	7	7	9	7	8	9	6	5	7	7
Fat ...	3.55%	3.95%	4.1%	4.0%	4.05%	3.9%	4.0%	3.75%	3.8%	3.5%	3.5%	4.1%
Solids not fat	8.45	8.65	8.55	8.5	8.06	8.6	8.55	8.05	8.5	8.5	8.6	8.6
Lactose ...	4.5	4.3	4.01	4.3	4.03	4.4	4.55	4.4	4.3	4.3	4.3	4.1

From these figures it would seem that the variation which occurs in the morning milk is that there is a falling off in the quality of the milk, both as regards butter fat and solids not fat from June to August and September, when the quality is the poorest. The lactose content of the milk is fairly constant, the limits for the monthly averages being 4.55% to 4.3%. During the whole period under review the butter fat content is well above the legal limit, whereas the solids not fat vary from slightly over the limit to slightly under.

As is to be expected the evening milk is much richer than the morning milk, both in butter fat and in solids not fat, the former varying from 3.5% to 4.1% and the latter from 8.45% to 8.65%. In this case the richest milk was obtained about March, after which a gradual fall in quality occurred until October and November, a sharp recovery taking place during December. The lactose content however was lowest in March and greatest in July. As all the evening samples were preserved with Formaldehyde, it seems probable that the lactose content would not be changed very much by bacterial action during the interval which elapsed between the time of milking and when the sample was analysed.

The variations shown by individual samples are much much greater than those shown in the monthly averages; the variations are given below:

Morning Milk

Butter Fat	...	...	...	...	2.4% - 5.2%
Solids not Fat	...	...	...	...	8.0% - 8.7%

Evening Milk

Butter Fat	...	...	...	...	3.0% - 5.1%
Solids not Fat	...	...	...	...	8.1% - 8.9%

(f) EXPERIMENTS WITH DENATURANTS FOR POWER ALCOHOL.—Samples of alcohol and of various denaturants were received from the Honourable Receiver General, and experiments have been made with the object of preparing denatured alcohol, free from colouring matter, for use in internal combustion engines. These experiments are still in hand.

(g) SOIL SURVEY.—Further samples of soils have been taken in the Moka District, but due to the pressure of work in other directions, the analysis of these samples has not yet been completed. As soon as they are completed, the results will be published, and samples will be taken from the district of Flacq.

(h) TOBACCO EXPERIMENTS.—Eight samples of tobacco were analysed in connection with a manurial experiment carried out by the Tobacco Officer of the Department.

In general it may be taken that the albuminoids are rather high, but that the nicotine is not correspondingly high, the former ranging from 20% to 24.9%, and the nicotine from 2.76% to 4.05%, all results being calculated on dry matter in the leaf.

The ash, including sand and carbon dioxide, amounted to between 19% and 23.9%, so that these samples were rich in ash. Compared with published analyses, the ash was poor in Calcium Oxide, but rich in Magnesium Oxide, the two being equal to between 34% and 40% of the total ash. The ash also contained less Potassium Oxide and more Chlorine than shown in published figures. These results are quite in keeping with those of the previous year.

IV.—Routine Analyses

The routine work of the Chemical Division was much less during the year under review than in the preceding year, due to the smaller number of samples received for analysis.

The analyses performed for the public are as follows :—

	<i>Samples received</i>	<i>Estimations</i>
Guano melange	13	62
Lime	32	35
Dipping Solution	68	68
Saltpetre	8	18
Sulphate of Ammonia	9	9
Phosphatic Manures	8	10
Fumier	14	35
Miscellaneous	14	69
Total ...	166	306

In addition to the above and also in addition to the very large number of analyses performed in connection with the investigational work above mentioned, the following routine work was done in connection with the work of the Department.

	<i>Number of Samples</i>	<i>Estimations</i>
Cane Juices	877	1,754
Feeding Stuffs	16	...
Essential Oils... ..	13	...
Miscellaneous	6	...
Total ...	912	...

V.—The Mauritius Agricultural and Industrial Exhibition

A considerable amount of work was done in connection with this Exhibition, mainly in regard to the preparation and the staging of exhibits. All officers of the division took part in various capacities, assisting either as clerks or as receiving officers for exhibits in the various sections. The Chemist was appointed one of the Judges in the Dairy section.

The Chemist and Assistant Chemist also performed the chief part of the work in connection with the Clean Milk Competition, which was organised as part of the Exhibition

VI.—Publications

(a) A short report on "The availability of Phosphates in slightly acid soils" was published in the *Revue Agricole*.

(b) The results of the experiments conducted during the years 1924 and 1925 in relation to the Nitrogen Cycle have been written up in the form of a bulletin entitled "Reversion of Nitrates in Mauritius soils under Cultural Conditions." This bulletin is at present in the press.

(c) A further bulletin of the General Series has been prepared, under the title of "The Preparation and Storage of Farmyard Manure under Mauritius Conditions." This bulletin will shortly be sent to the press.

VII.—Education

The usual duties in relation to teaching at the Mauritius Agricultural College were performed by the Lecturer in Agricultural Chemistry and the Assistant Chemist. These duties consist of the delivering of two lectures weekly to each class, and of the supervision of two laboratory periods weekly with each class.

VIII.—Examinations

The Lecturer in Agricultural Chemistry was appointed Sub-Examiner for the following University of London examinations :—

(a) Matriculation Examination, January 1926.

(b) Matriculation Examination, June 1926.

(c) Intermediate Arts and Science Examinations, July 1926.

In addition to these the above officer was appointed one of the four examiners for the examination for the Registration of Agricultural Chemists.

BOTANICAL DIVISION

The Botanist reports as follows :—

The work during the year 1926 comprised investigations on the physiology of the sugar cane, sugar cane selection work, investigations on sugar cane and other plant diseases, miscellaneous work and lecturing and supervision of laboratory work in the College of Agriculture.

Investigations on the physiology of the sugar cane

The observations in connection with the rate of growth of the sugar cane and the effects of environment at Réduit, Pamplémousses and Medine were concluded and the results for Medine published in the Report on the Irrigation Experiment Station, Medine. The results for the two other stations are in the process of completion and will be published in due course.

As a result of these observations it has been found possible to calculate the percentage of the total crop formed during each month of growth, and the effect on this of climatic conditions.

The results of the investigation on the transpiration ratio of the sugar cane were also published in the report on the Irrigation Experiment Station, Medine.

Investigations on Plant Diseases

Plant Inspection Service.—This service has been continued mainly along the lines upon which it was launched and continued during 1925. During the year under review there have been 108 inspections of plantations conducted by the Plant Inspector. After each inspection, this officer submits a report and when necessary, the estate on which the Plant Inspector has reported some feature of special importance, has been visited by the Botanist and Mycologist and advice given to the planter concerned as to the means of control of the existing disease. In any case, whenever it has been deemed necessary, letters of advice have been issued to planters on the means of control against diseases of sugar cane or other crops reported by the Plant Inspector.

During 1926 there has been discovered only one previously unrecorded disease or abnormal condition of the sugar cane, to which the name "bunch top" has been applied. This abnormal condition has been discovered on five estates of the Island on the White and Striped Tannas only but not on a scale to cause any appreciable loss. It is not regarded as being occasioned by the attacks of a parasite and is therefore apparently not infectious.

The Plant Inspector has been rendering useful service also in spending one day a week re-arranging the specimens in the Herbarium at Pamplémousses, which is in a serious need of attention.

The remainder of the time of this officer has been spent, as reported last year, in assistance in the Laboratory and field investigations of the Botanical Division.

Sugar Cane Diseases

Streak.—This disease was found on eight different estates during 1926, but the percentage of infection wherever found is still very low, not exceeding 1%. The aerial transmission of the disease from infected to healthy sugar cane is apparently still not readily effected in Mauritius. No variety other than the R.P. 8 has yet been found affected, and even on this variety the vegetative activity of diseased canes is not usually seriously affected.

It was reported last year that a similar disease had been discovered on maize, *Coix edulis* and eight species of wild grasses. During 1926, the disease was found on *Cenchrus echinatus* and two undetermined species of wild grasses in addition to those mentioned above.

Whenever practicable diseased stools of cane have been uprooted and destroyed almost immediately after their discovery, but in some fields in which the canes were very tall and in which lodging had taken place due to the cyclone in April the eradication of the streaked stools has been postponed until after the crop has been harvested.

Gumming Disease.—Caused by *Bacterium vascularum* was again found widespread over the Island. In some fields of the varieties M. 131, M. 55, M. 87, Port Mackay, especially the last two, the disease sometimes spread to a serious extent, but due to the fact that the sugar cane fields of the Island are for the most part planted in White Tanna and other varieties highly resistant to gumming, the disease does not assume an epiphytotic form over the Island as a whole. Careful selection of planting material and avoiding the cultivation of susceptible varieties would reduce the amount of this disease in the Island to a negligible quantity.

Smut.—Caused by *Ustilago sacchari* was observed on thirteen estates, only four of which were in districts other than Black River and Rivière du Rempart, the driest parts of the Island, and one of the four was almost on the Black River border of Plaines Wilhems. The varieties affected were M. 131, M. 55, D.K. 74, R.P. 8 and White and Striped Tanna.

Pineapple Disease.—Caused by *Thielaviopsis paradoxa* again was the frequent cause of the partial or complete destruction of cuttings. An experiment was laid out at the Central Experiment Station, Réduit, to determine the effect of immersing the cuttings in 4:5:40 Burgundy mixture before planting in the control of pineapple disease. 200 cuttings were thus treated and planted and 200 planted without treatment. At the time of writing—about six weeks after planting—57 cuttings have produced sprouts appearing above the ground in the treated plot and 26 in the untreated plot. Six or seven cuttings which had failed to sprout were uprooted in each plot. In the untreated plot all were decaying and all except one showing typical symptoms of pineapple disease, while in the treated plot all of the uprooted cuttings had commenced to sprout.

Red Rot.—Caused by *Colletotrichum falcatum*, was observed on nine estates on the varieties White Tanna, D.K. 74, M. 131, M. 33, M. 87, R.P. 6 and M. 55. On two estates the disease was found to be the cause of the failure of the sprouting of planted cuttings.

Attacks of *Colletotrichum falcatum* and *Thielaviopsis paradoxa* on the basal parts of sugar cane stems were suspected as being amongst the causes of a top rot which occurred on two estates.

Root Disease.—Was reported on five estates. The exact cause of this type of disease still remains obscure, but, as reported in former years, most cases seem to be brought about or aggravated by unfavourable conditions for growth, such as, drought, lack of drainage, cultivation and fertilizers.

An infection of an unknown variety of cane on one estate in the Black River was strongly suggestive of an attack of collar rot, caused by *Hendersonina sacchari*. The spores of the fungus in association with the diseased tissues were very similar to if not identical with those of *Hendersonina sacchari*.

Diseases on plants other than Sugar Cane.

Coconuts.—During 1926 three new areas of coconuts at Pointe aux Sables showed symptoms of the disease reported last year. These new areas were, however, separated by blocks of healthy trees. After a study of environmental conditions it is now considered that the unhealthy appearance of the coconut trees at Pointe aux Sables is due more to the configuration of the land,—resulting in a water logged condition of the soil in some areas and to lack of water in others—than to the presence of any specific parasite in the soil. The drainage of water-logged areas would involve too great an expenditure of money to make the attempt worth while. The inoculation experiments with fungi from diseased coconut roots reported last year have up to the present yielded negative results.

A portion of a coconut plantation at Albion Estate developed symptoms similar to those at Pointe aux Sables, but it was considered that the unhealthy conditions of the trees there was brought about by the flooding of the land with water flowing from an aloe fibre factory.

Filao.—The plots at Les Bouchons laid out, to test whether or not the so-called "Smut" disease of the filao (*casuarina equisetifolia*) was carried over in the soil from one plantation to the next were inspected in November. In the plot planted in 1920 and containing the oldest trees, there was a small area in which a number of trees were succumbing or had succumbed to a disease. One tree only was showing signs of "Smut" (*Trichosporium versiculosum*) in the bark. The fact that all the dead and dying trees were together in the same area pointed to the conclusion that they were being killed by the attacks of a soil parasite. Whether or not it is a reappearance of the same disease which wiped out the previous plantation still remains to be proved. The causal organism of the disease has not yet been discovered. The effect of entrenching the diseased area in checking the spread of the disease is to be tried.

A disease with identical symptoms has been discovered involving two distinct areas in the vicinity of Pointe d'Esny. In one of these areas one tree is showing the presence of the "Smut" (spores of *Trichosporium versiculosum*) in the bark.

Tobacco.—Mosaic disease was reported from and observed on several plantations. The ratoons are chiefly affected, but at the Morne and at Terre Rouge there were respectively heavy percentages of infection on virgins. The possibility of the transmission of the disease or otherwise in the seed is being tested.

There were also several outbreaks of Granville wilt caused by *Bacillus solanacearum*, and leaf spots of various types. One is undoubtedly that caused by *Cercospora personata*, another type apparently of bacterial origin though further experimental work is needed to prove this point, and the third—a white speck—apparently of non parasitic type. This white specking was observed particularly wide-spread on a tobacco plantation in the Rivière du Rempart District, chiefly on the ratoon shoots. An experiment is being conducted to test its transmissibility or otherwise in the seed. No organism could be found associated constantly enough with this spot to warrant suspecting it as the cause of the trouble.

Potato (*Solanum tuberosum*).—The blight, caused by *Phytophthora infestans*, was of frequent occurrence and occasioned heavy losses. Experiments conducted at the Central Experiment Station, Reduit, and on a plot at Bambous proved that the regular applications of a spray of Burgundy mixture to potato plots during weather favourable to the spread of the blight is an economical means of checking the ravages of the disease.

A "collar rot" of potatoes, marked above ground by a shortening of the internodes of the stem, a rolling inwards of the leaves and the formation of aerial tubers was observed at Reduit and Bambous. A *Rhizoctonia*—thought to be *R. solani*—was found in association with freshly diseased tissue.

Pistache (*Arachis hypogea*).—A heavy infestation of leaf spot caused by *Cercospora personata* was observed on the experimental plots at Reduit, chiefly on the varieties Virginie and Gambia.

On Peas (*Pisum sativum*) a collar rot was observed in a garden in Rose Hill. A *Fusarium* was found in association with diseased tissues.

Control measures recommended included removal and destruction of diseased plants, stirring of soil, liming of the bed and burning the top layers of the soil after the harvesting of the peas.

Letchi (*Nephelium litchi*).—The trees reported last year as being infested with an alga, believed to be *Cephaleuros mycoidea*, were inspected again during the year under review. Both trees were still bearing a growth of the alga, but on one which had been manured there was a much higher algal growth than that on the other tree.

Grasses.—The sphaelial stage of an ergot was found on both *Paspalum dilatatum* and *Panicum maximum*.

Manioc (*Manihot utilissima*).—A "die-back" of the twigs, believed to be caused by the fungus *Gloeosporium manihoti*, has been frequently observed. From observations made the varieties Beureum, Bitter and Negrita II seem to be more resistant than the other varieties both at Reduit and at Pamplemousses Experiment Stations.

Banana.—A few cases of wilting plants were sent to the laboratory from Grand Port showing symptoms strongly suggestive of the Moko disease caused by *Bacillus musae*.

During October the Botanist and Mycologist was despatched to Rodrigues to report on the working of the Experiment Station there and to investigate a disease of manioc. This mission formed the subject of a special report. The disease of manioc was found to be a "die-back" of the twigs, with which was found associated a *Gloeosporium* believed to be *Gloeosporium manihoti*. In some parts of the Island the disease existed in an acute form.

Streak disease was observed on maize and on a species *Coix* in Rodrigues.

Miscellaneous Work included :

(a) Supervision of London University Examinations.

(b) Inspection of School Gardens with the Chief Agricultural Officer.

A bulletin on Diseases of Sugar cane in Mauritius was published during the year under review.

The Botanist and Mycologist delivered three lectures and supervised two laboratory periods per week in Botany and Mycology at the College of Agriculture.

VETERINARY DIVISION

The Government Veterinary Surgeon reports as follows:—

Importation of Animals.—During the year the following animals were imported into the Colony.

Foreign Countries			Dependencies		
Horses	...	45	Donkeys	...	4
Mule	...	1	Dogs	...	4
Cats	...	2	Pigs	...	1,669
Dogs	...	6	Goats	...	1,823
Madagascar Bullocks	...	5,555	Sheep	...	756
Pure bred bull	...	1	Bullocks	...	613

Quarantine Station.—One Friesland bull imported from South Africa for stud purposes was placed under observation for 6 weeks previous to its liberation. 6 dogs and 2 kittens imported during the year have undergone 6 months quarantine, 1 dog died of pneumonia during the segregation.

Government Animals.—Animals of the following Department were treated.

Police Department.—Two horses treated and cured for lameness, one horse for wounds through accident, and on three occasions antitetanic serum were injected to horses wounded by nails in their hoofs with success.

Medical and Health Department.—Bullocks of Curepipe Sanitation were attended for Colics, Keratitis, Lameness and Bruising. One bullock died at Mahebourg of chronic Meteorisation. A donkey and two mules at Port Louis were treated for lameness.

Stock Farm.—One Hissar bull was treated for enteritis and recovered. A second one died of ulcerative gastro enteritis. One Ongole cow died of peritonitis through calving. A Friesland calf recovered from keratitis, one heifer and two bull calves died of wire worm infection, and the imported Friesland bull "Elsenburg" died of old age.

Government Dairy.—Cows of the Dairy were treated for pneumonia, lameness, bruising and foot rot. One cow died of rupture of the spleen through a fall. Three cows died of internal hemorrhage with lesions of splenomegalia of an obscure character; specimens of all organs and blood have been microscopically examined without specific determination. Two cows died of septicoemia owing to prolapsus utera, two others died of pneumonia, one of arsenic poisoning, and another one through dystocia.

Woods and Forests Department.—One bullock was operated for an abscess and recovered.

Cases of Cruelty.—Fifteen horses, mules, bullocks and donkeys were examined at the request of the Police Department for cruelty on animals.

Contagious Diseases.—One case of epizootic lymphangitis was recorded on a horse, the animal which was placed under one month quarantine was subsequently destroyed being incurable.

Surra.—The number of smears taken and examined during 1926 was of 7,506. 44 positive reactions were recorded amongst which 4 equines (2 mules and 2 horses) which were destroyed.

Tuberculosis.—12 milch cows were tested with tuberculine with negative results, and the B.C.G. vaccine injections were started on calves at Le Morne Estate.

Meat Inspection.—Abattoirs were inspected regularly, specially those of the districts. On two occasions carcasses seized for tuberculosis were maintained, a third one was also maintained for cachexia. Carcasses of two heifers under age were seized for illegal slaughtering, and the meat was placed at the disposal of the Poor Law Commissioner; the owners were prosecuted according to the regulations in force.

Mission to Réunion, Madagascar, Rodrigues.—Owing to the prevalence of contagious diseases in Bourbon and Madagascar, an official visit was paid to these countries. In Bourbon the disease which was prevailing on pigs was reported to be Swine Plague, but at the time of my visit no case was recorded.

In Madagascar an enquiry on the prevalence of Anthrax from villages where bullocks are brought for importation into this Colony proved that these places were free from this disease.

In Rodrigues a contagious disease on goats which caused the death of about 3,000 heads was carefully studied and was attributed to an ultra microscopical virus. Regulations re: the exportation of these animals from that Dependency were subsequently enforced.

STATISTICAL DIVISION

The Statistician reports as follows:—

Agricultural Statistics.—The Blue Book statistics relative to agriculture were supplied to Government. Statistical data were also supplied to the International Institute of Agriculture, Rome; to the Board of Trade, to the Colonial Secretary's Office, the Immigration Department, etc.

Quarterly reviews of local prices of certain essential articles together with index numbers were issued. Monthly reports on weather and crop conditions and forecasts of the sugar crop were prepared and submitted to Government and to various interested local bodies.

The results of the field experiments of the Department in relation to variety and manure tests were subjected to the usual statistical treatment for the determination of their measures of precision.

During the year, a compilation of the distribution and nature of cane varieties at present cultivated in the Colony was carried out.

Meteorological.—The meteorological service of the Department was continued on the same lines as heretofore. Observations of the temperature of air and of evaporation, soil temperature at depths of 3 in., 6 in. and 12 in., rainfall, continuous record of air temperature are taken at the Central Experiment Station, Réduit, while temperature of air and of evaporation and rainfall are observed at three secondary stations of the Department, viz: Royal Botanical Gardens, Pamplémousses, Abercrombie Nursery, Port Louis and Nursery Garden, Curepipe. In addition, most sugar estates contribute rainfall observations. All these data are reduced and co-ordinated to assist in the work of crop forecasting and for general agricultural questions connected with climatological factors.

Educational.—The general management of the Agricultural College was carried on as usual under the direction of the Principal, with the help of the College clerk.

Lectures in Physics were delivered once a week to the first year students, each lecture being followed by a laboratory period. Lectures in Applied Mathematics were delivered to the same students once a week and lectures in more advanced Physics delivered to second year students once a week.

Special Work.—The Statistician acted as Director of the Royal Alfred Observatory between December 12th, 1925 and September 15th, 1926.

SUGAR TECHNOLOGICAL DIVISION

The Sugar Technologist reports as follows:—

Cane Selection.—The second progeny from plots planted at Highlands in 1923 and selected last year (Bad selection following Mr. Shamel's method) was destroyed by an accidental fire. The mass selection plot, however, is showing some good stools which will serve as a new start for selection on Mr. Shamel's principle.

The mass selection plots at Rich Fund and Mon Desert were abandoned, the cyclone of April 19th having damaged too seriously the canes to permit of any further selection.

The progeny plot planted at Reduit last year from tops coming from the Médine Experiment Station is progressing and will be selected next year.

Visits to Factories and Investigations on Estates, etc.

Twenty two out of the forty four factories were visited during the grinding season, several of them on special request and repeatedly. Some particular points were studied and advice given.

During the crop, great difficulties were encountered with the defecation of the juice, in many factories, probably as a consequence of the abnormal climatic conditions; cyclone in April followed by a long wet season with temperature above normal. In one factory of the northern part of the Island, it was impossible to obtain a clear juice at the usual pH of 6.8—7.0. The precipitate did not settle at a pH higher than 6.0. The addition of a small amount of phosphoric acid improved conditions.

In the same factory there was a rapid growth of micro organism forming mucilaginous gummy substances, in the pipes carrying the raw juice from the mills to the sulphitation tank. The organism—a staphylococcus—has been isolated but not yet studied.

The Peck strainer was installed in three factories. After 24 hours work the filtering gauze was clogged by mucilaginous gummy substances and filtration stopped altogether. The matter was followed in one of the factories and the fact attributed to the rapid development of another micro organism—a short bacillus which has been isolated. The same organism was detected in the raw juice produced in a factory where there is no Peck strainer. This organism comes in probably with soil adhering to the cane and does not develop until special conditions occur—such as those prevailing in the case of the Peck strainer. These two points were studied with the courteous help of the Director of the Bacteriological Laboratory. In both cases there was no *Leuconostoc* present.

The Roussel process (filtration of all the defecated juice without previous settling) worked very satisfactorily at Highlands, in spite of the bad quality of the cane.

In all the factories visited it was reported that juices were particularly susceptible to fermentation. Special care had to be taken for preservation of samples.

Lafeuille crystallizers were erected in two factories of the central plateau. Unfortunately no definite results have been obtained, because of mechanical difficulties. The work of these crystallizers, however, seems promising.

A water cooling device was placed in an open crystallizer in one factory. The purity of run off from B masse cuite reached a minimum after 19 hours against 96 in the air cooled crystallizers. Experiments with A masse cuite will be conducted next crop.

The Mauss vacuum cloth filter was tried at St. Aubin. It is reported that one of these can replace all the filter presses economically, in the factory.

It is worth noting that the quick running vacuum pump for evaporators and pans is being adopted by several factories. The first installation in the Colony was at Argy (Ingersoll Rand) which was put up in 1924 on the special advice of the Sugar Technologist. This year Savannah erected one built by The Mirrlees Watson Cy, and others have been ordered from the same firm for next year.

The distilleries were also visited, one on special request, where advice was given and appreciated.

Controle Mutuel.—Thirty six out of the forty four factories contributed to the "Controle Mutuel" and returns regularly distributed fortnightly amongst the contributors. Many of these suggest that the name of the factories should be published, so as to give to the "controle" its full efficiency. This suggestion deserves consideration.

Educational.—A full course of lectures in Sugar Technology was delivered to the third year students of the College of Agriculture. Weekly lectures on Sugar House Chemistry and chemical control and on the cultivation of the sugar cane were delivered to the second year students. Practical demonstrations were given in the laboratory. Practical laboratory work was performed by the students after the lectures, under the supervision of the Sugar Technologist.

The second year students visited two sugar factories in detail during the crop and followed the work of the factories.

Mr. J. Vantrooijen, Assistant Director of the Reunion Agency of the "Société des Sucreries Coloniales" paid an official visit to the Colony in November, in connection with the sugar industry. He visited several factories with the Technologist and followed some of the research work in hand in this division.

TOBACCO DIVISION

The Tobacco Officer reports as follows:—

This division came into being during the past year on my secondment for duty as Tobacco Officer in January 1926 for one year, and this therefore is the first annual report.

At the commencement of the year under review planters could only cultivate tobacco under permit granted by the Department of Agriculture or by the payment of tax under Ordinance 19 of 1890, but during November this law was repealed and tobacco cultivation thrown open.

At the end of October, the last date for which figures are available the land under cultivation totalled 504 $\frac{3}{32}$ acres being distributed in the various districts as follows:—

District	PERMIT HOLDERS		Acres for which permits granted
	No. of permit holders	%	
Flacq	427	82.1	217 $\frac{1}{2}$ acres or 44.74%
Black River	19	3.6	70 $\frac{1}{2}$ " 14.52%
Pamplemousses	22	4.23	55 $\frac{1}{4}$ " 11.51%
Plaines Wilhems	18	3.46	49 $\frac{1}{2}$ " 10.11%
Riv. du Rempart	13	2.99	49 " 10.11%
Moka	6	1.15	18 " 3.70%
Port Louis	7	1.34	12 $\frac{1}{2}$ " 2.51%
Grand Port	6	1.15	4 " .82%
Total	520		485 $\frac{1}{2}$

The number of cultivators who had paid tax in the various districts for that period are as follows:—

District	No. of persons	Area
Flacq	95	12 $\frac{20}{32}$ acres
Riv. du Rempart	64	4 $\frac{9}{32}$ "
Pamplemousses	8	1 $\frac{2}{32}$ "
Plaines Wilhems	3	$\frac{30}{32}$ "
Port Louis	1	$\frac{1}{32}$ "
Black River	1	$\frac{1}{32}$ "
Total	172	18 $\frac{31}{32}$ "

This brings the total acreage under tobacco at the end of October to 504 $\frac{3}{32}$ acres, and from the foregoing table that almost 50% of the acreage is in the Flacq district, cultivated by more than 80% of the total number of cultivators. The average area per cultivator is however only .509 acre.

Since the repeal of Ordinance 19 of 1890 the increase in acreage has been very great, more so in the Pamplemousses, Rivière du Rempart and Black River districts than in others, although there is every likelihood of considerable increases in acreage in Plaines Wilhems, Flacq and even in Grand Port and Savanne. A conservative estimate of the acreage under cultivation at the end of the year is 800 acres.

The most outstanding event in the year was the carrying out of experiments in flue curing and bringing these to a successful conclusion. These experiments were carried out at Réduit by the Tobacco Division, and at Riche Terre by the British American Tobacco Company Ltd. with Blue Tobacco and in both cases a fairly high grade leaf was obtained. The success of these experiments has entirely altered the prospects of the industry and has placed it on a surer foundation. Further the considerable increase in acreage can be put down to these experiments which have given a great incentive to all tobacco growers.

The number of flue curing barns is constantly growing and at the end of the year they were being operated on the following estates:—

Solitude Estate, Riche Terre	2 barns
Bois Rouge Estate, Mapou	1 "
Grande Rivière Noire Estate, Black River	1 "
Mon Repos Estate, Black River	1 "
Haute Rive " "	1 "
Malgré Tout " "	1 "
Brickfields Calebasses, Pamplemousses	1 "
Central Experiment Station, Réduit	1 "
Total operating	9 "

These barns are in course of construction on the following estates:—

Versailles Estate, Riche Terre	1 barn
Bois Rouge " Mapou	1 "
Petite Rivière Road	1 "
Total in course of construction	3 "

It is fully expected however that there will be a big increase in the number of barns during the next few months, as the efforts of all growers are being concentrated on the production of flue cured tobacco.

This rapid extension in the industry has called for a considerable amount of itinerant work, and in June the Agricultural Superintendent was seconded for three days a week to

assist in this work. During the year 826 visits have been made to growers throughout the Island. During October the itinerary staff was further increased by one assistant for the small indian growers in the Flacq district. This has had the effect of considerably improving the product of these small planters.

There has been a great demand for seed and planting material during the year and 3,863 grams of seed have been distributed and 49,750 plants sold to growers.

The following experiments commenced in 1925 were completed early in 1926. These experiments comprised variety trials at Pamplémousses and manurial experiments with two Virginian varieties at the Central Experiment Station, Réduit. The tabulated results are given in Appendix V Annexure I.

The results obtained at Pamplémousses will be seen to be rather poor, but the quality was fairly high. The low yields to a great extent, if not entirely, were due to dry weather immediately after planting and are not reliable for a normal season. Fire curing experiments were also carried out with one of the varieties *i.e.* Yellow Pryor, and good results were obtained; the other varieties were all air cured the results being fairly good considering that the curing was carried out during January when the relative humidity of the atmosphere was fairly high.

At the Central Experiment Station, Réduit, only the varieties Sterling and Joiner were utilised under different manurial treatments, with a view to ascertaining the effect on the composition of the leaf of the varying treatments.

Up to the present the percentage of chlorine and sulphates in local leaf has been high to the detriment of the burning qualities and these manurial experiments had as an object the determination of the effect of the manures on these factors.

The outstanding difference between the plots which received fertiliser and those which did not, was that the fertilised plots matured two weeks earlier than the unfertilised plots. Results however are not conclusive from this one experiment, especially as various factors interfered with the reaping of the plots—such as rainy weather, disease, etc.

The chemical analysis of the leaf is submitted in annexure I together with the results.

A further series of manurial experiments were laid down but the cyclone in April destroyed the whole plantation, and so no results are available.

Another series were laid down and a serious attack of nematodes rendered the plantation useless for results, in fact 75% to 80% of the plants were stunted in growth.

The following experiments were commenced during 1926 and completed during the year, and the results are tabulated in Appendix V, Annexure II.

The first experiment was a varietal comparative trial with new varieties received from Nyasaland, *i.e.* Gold Leaf, Blue Pryor, Root Rot Resistant Burley, and Heavy Hanover Burley. In the case of Gold Leaf two plots were planted, one 3' x 3' the other 3' x 2', the difference in yield calculated on area will be seen to be very little, also there was no difference worth recording in the quality of the leaf produced. The difference is quite sufficient to cover the extra labour for planting.

The varieties Gold Leaf and Blue Pryor were fire cured and good results obtained, it was from this leaf that samples were drawn to be sent to brokers in London, the result of which will be dealt with later.

The Root Rot Resistant Burley was air cured and good results were obtained, the yield was very good.

The Heavy Hanover Burley almost failed and the results are therefore not included, the cause of the failure being dry weather immediately after planting.

The second experiment was with Blue tobacco which was planted for seed selection. It was only included as experiment as a certain number of leaves were harvested for the first experiment in flue curing carried out on the Island, this experiment was a success. No results are however obtainable as the whole of the leaves could not be harvested, as the majority of the plants were utilised for seed.

A third experiment was commenced in August but the curing is not yet complete and results are not available.

During the year work was commenced on the new experimental station at Beau Bassin, at which tobacco experiments will be the chief feature.

Work on a demonstration plot at Argy was also commenced.

As a result of the experiments, samples, of leaf were forwarded to brokers in London for valuation. They report that the samples forwarded would be worth as follows.—

		per lb
A.	Flue cured, bright 1st grade	... 2/6 to 2/9
B.	" " 2nd "	... 2/3
C.	" " 1st " green	... If green considerably eliminated little less than B.
D.	" " 2nd " "	... 1/9
E.	" " perished	... 1/6
F.	Fire " 1st grade	... 1/6
G.	Air " 1st grade red	... 1/8
H.	" " 1st " light red	1/7 to 1/9 } Blue tobacco
J.	" " 1st " red	... 1/6 Constant

From the above figures it will be seen that there is a future for the tobacco industry here.

It is only natural that diseases have made an appearance on tobacco, which though present before were overlooked, but the added interest in tobacco and the extension of the cultivation has brought them to notice. The chief diseases encountered during the year are:—Mosaic disease which is widespread throughout the Island, though not difficult to control is propagated by the pernicious habit of ratooning and in cases where virgins are attacked the attack can be traced back to ratoons.

There have also been leaf spotting caused by *Cercospora* sp, a bacterial leaf spot in the Flacq district, non parasitic leaf spot widely spread, especially prevalent during the cold wet weather, and angular leaf spot caused by *Bacterium angulatum* suspected in a few cases but not proved.

Granville wilt has also occurred in several plantations, this is caused by *Bacterium solanacearum*.

One or two cases of *Fusarium* wilt have also been brought to notice, but this is not very common.

One case of Hollow Stalk was brought to notice, this is believed to be caused by *Bacillus carotovus*.

There was also a suspected case of Sand Drown or a chlorosis of similar nature brought to notice.

During the year the following publications have been prepared, printed and circulated:—

Bulletin No. 33 Tobacco. Its cultivation and preparation.

Leaflet No. 17 Conseils sur la culture et la preparation du tabac.

„ No. 20 The curing of tobacco by the Flue curing process.

Lectures on tobacco and the preparation of other agricultural products were delivered to the third year students at the Agricultural College.

Tobacco Factory.—The past year has been the most successful year recorded at the factory, and quite a fair profit has resulted. The sales are the highest on record and it was unfortunate that they had to be curtailed owing to lack of supplies in June last.

The outstanding feature was the placing on the market of a yellow cigarette made from local tobacco and which found a ready sale, the entire stock being sold out in three months.

YEARLY SALES

	1924	1925	1926
Tobacco ...	2,220.5 Ks.	3,236.5 Ks.	4,859.875 Ks.
Dodo Cigarettes ...	4,271 tins	5,327 tins	3,019 tins
Dodo "B" Cigarettes ...	...	...	1,801 tins

The purchases of leaf are also the highest recorded, 13,848.3 kilos having been purchased from growers, at an average price of Rs. 1.05 per kilo. These purchases are I think approximately $\frac{1}{4}$ th of the total production of the Island during the past year. The total production of the Island for 1916 being approximately 90,000 kilos.

The annual statement for factory is annexed. (Appendix V) and from which it will be seen that a profit of Rs. 7,551.35 cs. was made. This profit would have been higher had stock not been written down in value towards the end of the year; this was necessary owing to the reduction in the selling price of tobacco.

The stocks on hand are slightly in excess of the stocks at the beginning of the year.

At the Agricultural and Industrial Exhibition held in October the Tobacco Division had a comprehensive exhibit of manufactured and unmanufactured tobaccos.

Different grades of flue cured, fire cured and air cured leaf were exhibited, also a model of a flue curing barn and plans, specimens of various diseases, etc.

The different types of manufactured tobacco included Dodo and Dodo "B" cigarettes, the latter being awarded a bronze medal, and black shag tobacco.

During the first two days of the Show, cigarettes were manufactured from local leaf and distributed to visitors.

Literature was also distributed and an officer of the division was always present to give information to those interested.

The past year also saw the erection of a tobacco factory in Port Louis by the British American Tobacco Company (Mauritius) Ltd. for the manufacture of cigarettes.

This firm have two leaf experts here to teach growers the new methods of curing. These facts combined with the intensive propaganda work carried out by the Department of Agriculture are responsible for the increased production and interest in this crop.

AGRICULTURAL AND EXPERIMENT STATION DIVISION

The Chief Agricultural Officer and the Agricultural Superintendent report as follows:—

Experiment Stations

Experiments with canes.—As in previous years experiments with cane varieties were carried on in different parts of the Island.

Cane varieties were reaped at Réduit, Pamplemousses, Queen Victoria, Highlands, Britannia, Long Moutain and Labourdounais.

The following services of bulls were recorded at the Stock Farm—

Pure breed Ongole Hathi II	...	...	...	1
„ Hölstein Friesland-Réduit Chieftain	...	...	...	2
$\frac{3}{4}$ breed Holstein Friesland-Maritzburg	...	...	...	16
Pure breed Mysore—Nizan II	...	...	...	1
„ Hissar—Amir VIII	...	...	...	3
				—
Total	...	...	...	23

Poultry and Rabbitry.—No progress was made at the Poultry and Rabbitry. The hens being too old, it was decided to replace them and new poultry ordered, but it has not been received as yet.

A serious outbreak of coccidiosis at the Rabbitry has destroyed a large number of the rabbits and guinea pigs.

Roads and Buildings.—All roads and buildings belonging to the Department have been kept in good condition.

The Agricultural Superintendent and Overseer's quarters have been repaired and the Agricultural Superintendent's quarters also repainted.

Medine Irrigation Experiment Station.—The Medine Irrigation Experiment Station was closed in February.

Royal Botanical Gardens Pamplermousses.—The work of improvement in these gardens was continued during the year. A collection of selected ornamental trees was planted on the site of the filled up pond near "Mon Plaisir."

Young seedlings were planted to replace vacancies along the different palm avenues.

The two plant sheds in the Nursery were repaired, painted and fenced with wire netting.

Stone platforms were erected inside to replace the worn out iron shelves. New varieties of ferns, begonias, gloxinias, etc, were added to the collection of ornamental plants.

The lawns were often mown and swept. All lakes, canals, avenues, paths and beds were regularly cleaned.

The Eucalyptus plantation made at "Mon Plaisir" last year was weeded; a certain number of young plants have died where the tap root met the shallow rock bottom.

298 mango-grafts of good varieties and 285 letchis layers were made and sent to Abercrombie Nursery for sale to the public.

The Police Band played several times at the Gardens before a large attendance of visitors.

Several pic-nics were held and many persons visited the Gardens during the year.

A Seychelles tortoise was presented to the Gardens by Mr. J. Closel.

At the invitation of the Director of Agriculture several elected and nominated unofficial members of the Council of Government visited the Gardens on the 30th of November. They expressed their appreciation of the well kept state of the gardens.

Curepipe Gardens.—Several new beds were made in the vicinity of the office; they were planted with selected varieties of roses.

All the privet (*Ligustrum*) hedges and unsightly trees growing in the flower garden were removed and the cleared space grassed over. This work has considerably added to the appearance of the Gardens.

The kiosk in the Fernery was repaired and a new galvanized iron roof put on.

200 young seedlings of "Chaulmoogra" (*Hydnocarpus Wightiana*) were raised from seeds received from India.

A large number of budded roses, palms and other seedlings were raised in the Nursery.

The sale of flowers and plants amounted to Rs. 462.75 cs.

Le Réduit Grounds.—These grounds were maintained in good condition. Seedlings of Gloxinia, Begonias, Cyclamens and Primulas were successfully raised. The collection of roses was increased by budding other varieties.

Vegetables were supplied to Government House throughout the year.

The two stone pillars at the main entrance were pulled down and re-erected several feet away on each side, in order to allow the widening of the avenue.

Abercrombie Nursery.—The sale of fruit trees, ornamental and economic plants to the public amounted to Rs. 4,212.25 cs. an increase of Rs. 1,885 over the preceding year. 2,710 plants were supplied free to Government Institutions and 110 given in exchange.

Mr. Gabriel Regnard gave seeds of palms, fruit trees and orchids from Madagascar.

Suckers of Kew Pines were received from South Africa; these together with plants of local varieties are being propagated for sale to the public.

A large silver medal was obtained at the Agricultural Exhibition for a collection of Coleus plants.

Experimental Station, Beau Bassin—Towards the end of the year, this Department took over from the Medical and Health Department, part of the land formerly belonging to Barkly Asylum. It is proposed to establish an experimental station there, for trials with tobacco, sugar cane and other economics. A nursery for raising fruit trees, etc. for sale to the public will also be established.

Co-operative Credit Societies—The Registrar in a separate annual report gives an account of the work done by these Societies.

Maize Secherie—This Secherie was not operated during the year.

School Gardens—These gardens were regularly visited by the Chief Agricultural Officer. It is a pleasure to record that constant progress is being made in their upkeep. Two new gardens viz: at Camp Diable, Savanne and Sebastopol were registered during the year.

The following were prizes awarded to the best kept gardens :—

1st prize of Rs. 50 to Plaisance Orphanage
2nd " 40 to Highlands Aided School
3rd " 35 to Old Grand Port Convent School
4th " 30 to Riviere des Anguilles Government School
5th " 25 to Palma Aided School
6th " 20 to Quatre Bornes Aided School

Exhibits from School Gardens were sent to the Agricultural Exhibition, and several prizes obtained. The large silver medal for the best collection of vegetables was awarded to Quatre Bornes Government School.

Food Settlements—The shareholders of the St. Martin Co-operative Credit Society leased one acre plots at St. Martin and St. Thomas, which they planted with maize, manioc and other food crops. The yields obtained were satisfactory.

Government Dairy, Curepipe.—Yield of Milk.—The yield for 1926 reached 93,504 litres showing an increase of 18,887 on 1925 and 44,837 on 1924.

The above quantity was disposed of as follows :—

Supplied to Government Institutions ...	...	...	75,164
Sold to Public...	...	...	6,325
Fed to Calves...	...	...	10,122
Samples for control—analysis and otherwise ...	...	...	1,893

Births.—31 births were registered comprising 15 males and 16 females.

Deaths.—5 deaths occurred on calves—1 from peritonitis and from congenital weakness. 10 deaths occurred on cows—2 from pneumonia, 2 from dipping poisoning, 1 from meteorism, 1 from prolapsus uteri and 4 from an ill defined disease which prevailed during several months and which affected 30 animals out of which 26 recovered.

Abortion.—Six cases of abortion were recorded during the year.

Sales.—12 cows were sold as being of no utility to the Dairy, 5 were sold out of which 3 were ascertained to be farrow and 2 on account of their old age.

Enlargements.—10 cows and 1 bull were received from the Barkly Asylum in March and one cow from Reduit Stock Farm.

One bull was also imported from South Africa in October to replace the old one which was transferred to Reduit.

The erection of a new stable was started in October. It is intended for accommodating 14 heifers.

French drains started in 1925 are being completed for the absorption of soiled waters from the stables.

RODRIGUES

The Acting Agricultural Superintendent reports as follows :—

Climatic and Agricultural Conditions.—Crops were much damaged by the cyclone of the 17th April. On the 10th May heavy rains, caused by a thunder storm, again damaged the plantations and washed away a considerable amount of surface soil from the fields.

During June and July continuous rains kept the soil in an unfavourable condition for plant growth and prevented any successful sowing being made.

During September and up to the 20th October practically no rain was recorded, the result was another stop to the vegetation.

The Crops, on the whole, were greatly reduced and towards the end of the year the inhabitants had very little locally grown foodstuffs left, and were obliged to buy imported rice.

The rainfall has been abnormal this year, as can be seen from the following figures taken at Oyster Bay :—

Normal rainfall from Mauritius Almanach 44.55 inches.

Year	1923	1924	1925	1926
	29.90 ins.	32.26 ins.	35.12 ins.	69.89 ins.

The rainfall during 1926 was as follows :—

	Oyster Bay	La Ferme
January ...	6.49 ins.	4.53 ins.
February ...	4.33 "	3.74 "
March ...	3.11 "	2.68 "
April ...	22.35 "	17.01 "
May ...	6.90 "	2.82 "
June ...	6.24 "	5.69 "
July ...	7.13 "	3.74 "
August ...	4.18 "	2.36 "
September ...	0.39 "	0.30 "
October ...	1.58 "	0.59 "
November ...	1.99 "	1.04 "
December ...	5.20 "	2.17 "
	69.89 ins.	46.67 ins.

Work in the Experimental Station.—The tobacco drying shed has been extended to cope with the large amount of leaves cut this year. All sheds were repaired.

Drains in the Experiment Station have been remade and protected by dry masonry.

The road from the Jetty to the Experiment Station was raised and a bridge built.

The Jetty and paddocks were repaired after the cyclone.

The plantation of Kikuyu grass in the Coconut plantation was extended.

Maize.—Sown on the 28th January 1926. Badly damaged by cyclone and yielded 792 lbs of dry seed per acre.

Sown on the 13th May 1926. Yielded 2,132 lbs dry seed per acre.

Cotton—Long Staple Upland.—Sown on the 24th April 1925. Yielded 64 lbs stained and 114 lbs clean cotton per acre.

Sown 7th January 1926. Destroyed by cyclone.

Sown 20th May 1926. Growing fairly well.

Sea Island.—Sown on the 7th January 1926. Destroyed by the cyclone.

Sown on the 20th May 1926: Growing well.

Onions.—Sown on the 27th April 1926, and yielded 4,224 lbs per acre,

Tobacco—Connecticut Brodleaf.—Sown 30th November 1925. Destroyed by cyclone.

Zimmer Spanish.—Sown 12th January 1926. Destroyed by cyclone.

Sown 18th August 1926. Results not available.

Yellow Pryor.—Sown on the 14th November 1925. Yielded 924 lbs of dry leaves per acre.

Joiner.—Sown 14th November 1925, and yielded 1,176 lbs of dry leaves per acre.

Sown 14th September 1926. Results not available.

Sterling.—Sown 30th November 1925. Destroyed by cyclone.

Sown 18th August 1926. Results not available.

Blue Tobacco.—Sown 12th January 1926. Destroyed by cyclone.

Sown 14th September 1926. Results not available.

R.R.R. Burley.—Sown 19th October 1925. Badly damaged by rain water in drying shed during cyclone and yielded 294 lbs of dry leaves per acre.

H.H. Burley—Sown 28th October 1925. Damaged by rain water in drying shed during cyclone and yielded 546 lbs of dry leaves per acre.

Blue Pryor.—Sown 1st November 1925. Damaged by rain water in the drying shed during cyclone and yielded 762 lbs of dry leaves per acre.

Sown 13th July 1926. Results not available.

Gold Leaf—Sown 14th November 1925. Damaged by rain water in the drying shed and yielded 528 lbs of dry leaves per acre.

Sown 14th September 1926. Results not available.

Cuban.—Sown 30th November 1925. Destroyed by cyclone.

Manioc.—Twenty varieties were experimented with. Planted on the 25th April 1925 and harvested on the 1st to the 4th March 1926.

Yields, in pounds per acre, were as follows :—

Icery...	...	11,680 lbs.	Negrita No. 12 ...	8,800 lbs.
Negrita No. 15...	...	5,520	Cassava Bureum ...	10,400
Trinidad No. 3 ...	...	3,680	Paloma ...	7,360
Bitter Sticks ...	...	4,480	Blanchite ...	5,200
Rodney ...	...	8,560	Australie ...	6,880
Singapore ...	...	15,529	F. M. States ...	7,200
Smallings. ...	...	5,440	Trinidad No. 2 ..	5,120
Cabesa Dura ...	...	8,960	No. 29 ...	7,520
Blue Tops ...	...	5,760	Pacho No. 3 ...	2,560
Constantin ..	...	6,800	Bitter ...	5,760

Pistaches.—Planted on the 14th January, 1926 and yielded as follows. Results in lbs. per acre:—

Virginia Bunch	... 1,826 lbs.	Virginia	... 1,804 lbs.
Virginia Running	... 1,936	Bunch	... 1,672
Spanish Pea Nut	... 2,335	Gambia	... 1,232
Refusque	... 1,726	Local	... 2,031
Tennessee	... 396		

Sweet Potatoes.—Planted on the 18th August 1925 and harvested on the 29th July 1926. Yields, given in pounds per acre, were as follows:—

Pierson	... 17,358 lbs.	T. 3	... 2,904 lbs.
Egyptian Bebai	... 4,686	Barbadoes Barrel	... 5,478
T. 4	... 2,442	Egyptian White	... 4,488
Rouge	... 3,168	No. 4	... 2,970
Red Bermuda	... 13,662	Turkey Claws	... 5,280
Spooner	... 11,880	Chully	... 4,620
No. 5	... 2,244	Joes	... 6,534
Jersey	... 2,640	Sealys Seedling	... 3,498
Blanche	... 2,244	Georgia Yam	... 1,716

Mangels.—Variety Long Red sown on the 14th May, 1926, and yielded 29,608 lbs. of roots per acre.

Variety Yellow Globe sown on the 14th May, 1926, and yielded 35,120 lbs. per acre.

Orchard.—Over twenty five per cent of the Coffee trees were lost owing to the cyclone.

Stock Farm

Catalonian Donkeys

Births	... 3 Jacks, 2 Jennies.
Deaths	... 1 Jack, 1 Jenny and 1 Jack foal.
Sold	... 1 Jack, 1 Jenny.
Shipped to Mauritius	2 Jacks, 1 Jenny.
Present Number	... 6 Jacks, 19 Jennies.

Sindhi Cattle

Births	... 1 Bull, 1 Heifer,
Deaths	... 1 Calf.
Sold	... 2 Bulls.
Present Number	... 2 Bulls, 2 Cows and 3 Bull calves.

Pigs

<i>Middle Whites</i>	
Births	... Nil
Deaths	... 4 Boars and 2 Sows.
Present Number	... Nil
<i>Large Blacks</i>	
Births	... 2 Boars, 3 Sows.
Deaths	... 3 Boars, 4 Sows.
Present Number	... 4 Boars, 3 Sows.

Nigerian Sheep

Births	... 77
Deaths	... 11
Sold	... 41
Present Number	... 145

Poultry

Present Number ... 2 White Plymouth Rock cocks and 25 cocks & hens (crossed).

Trefles Co-operative Credit Society.—Three loans amounting to Rs. 178.05 in principal and interest were paid in during 1926.

Three more applications for loans viz : Rs. 80, Rs. 50 and Rs. 50, were granted by the Committee on the 13th November 1926.

Assets of the Society

Loans	... Rs. 180.00
In Bank	... 56.41
Total	... Rs. 236.41

Sale of Produce

Forest Produce	... Rs. 2,223.44
Miscellaneous	... 29.65
From Experimental Station	... 598.06
Total	... Rs. 2,851.15

Exports.—Shipped to Mauritius by the Secunder.
Accacia seeds, 9,206 bags, Bean 334 bags, Garlic 296 bags, Salt Fish 3,735 bales.
Cuttle Fish 780 bales, Tobacco 595 bales, Goats and Sheep 2,450, Pigs 1,661 and Cattle 707,

Reafforestation.—New plantations made during the year :

Bois Noir	9,000	Filao	550
Badamier	1,600	Jamrosa	4,000
Bois d'Olive	600	Bois d'Oiseau	1,600
Jack	600	Pomme Singe	25,900
Juniper	50	French Bois Noir	13,182
Vitex	8,210	T. Arjuna	10,850
Mahogany	925		

Recruiting

Jamrosa	2,400	Juniper	400
Bois Noir	3,400	T. Arjuna	2,675
F. Bois Noir	1,230	Badamier	400

BOARD OF AGRICULTURE

The Board of Agriculture established under Ordinance 30 of 1912 consists of :—

His Excellency the Governor, President.

The Director of Agriculture, Vice President.

The following members were appointed in 1926 :—

The Honourable Louis Noël	L. H. de Froberville Esquire,
" M. Martin	H. G. Ducray Esquire
" R. Gujadhur	A. Hugnin Esquire,
J. A. Duclos Esquire, C.M.G.,	J. J. Gibson Esquire,
G. Antelme Esquire,	E. Rouillard Esquire,
M. d'Unienville Esquire,	Gabriel Régnard Esquire,
G. Clarenc Esquire,	Adrien Wiehe Esquire,
M. Lagesse Esquire,	F. A. Nicholls Esquire,
J. de Spéville Esquire	Pundit Boleram Mookteram Esquire,

During the year 1926 there were three meetings of the Board held on February 10th, March 31st and August 27th respectively.

At these meetings the following questions were discussed :—

Meeting of February 10th—Tobacco industry in Mauritius.

Meeting of March 31st.—1. Agricultural Show at Port Louis.

2. Streak disease of sugar cane.

3. Top Rot of the sugar cane.

4. Report on Phytalus Campaign.

Meeting of August 27th.—Island's meat supply and control of tuberculosis on bovines.

PUBLICATIONS

The following publications were issued during the year :—

BULLETINS

1. Diseases of Sugar Cane in Mauritius.
2. Tobacco—Its Cultivation and Preparation.
3. Animal Diseases Regulations with Notes on Diagnoses.
1. Handbook and Guide to the Botanical Gardens of Mauritius together with a list of plants growing in the Gardens.
5. Report on the results obtained at the Government Experiment Station for the investigation of problems connected with the Irrigation of Sugar Cane at Medine.
6. Experiments with Varieties of Food Crops conducted by the Department of Agriculture 1921-26.
7. The Reversion of Nitrates in the Soil under cultural conditions in Mauritius.

LEAFLETS

8. Conseils sur la Culture et la Preparation du Tabac.
9. Notes sur les Borers de la Canne a Sucre.
10. Notes sur la Peste porcine.

The following reports and memoranda were prepared and submitted to the Council of Government and to the Board of Agriculture :—

Annual Report of the Department of Agriculture for 1925.

Report on Co-operative Credit Societies to 30.6.1925.

Report on Mr. Corbett's tour in South Africa.

The following articles from Officers of this Department were published in the *Revue Agricole* :—

Les Lapereaux	...	...	D. d'Emmerez de Charmoy
A propos de rations de ponte	...	...	"
Traitement de la diphterie aviaire	...	...	"
La grippe ou coryza des poules	...	...	"
Pour la conservation des pommes de terre	...	...	"
La production des mulards	...	...	"
Notes sur la composition d'une ration de production	...	...	"
Nouveau moyen pour combattre la fourmi rouge	...	...	"
L'utilisation du Chloryl dans la lutte contre les insectes nuisibles	...	...	"
Les oeufs de cane	...	...	"
Reproduction et Selection	...	...	"
Les porcs	...	...	Y. Lefebure
Précis de cyclonomie pratique	...	...	M. Koenig
Le Temps et la Coupe	...	...	"
Le cyclone du 19 Avril	...	...	"
Revue Meteorologique	...	...	"
La Coupe et le temps	...	...	"
Le Tabac, Choix des Graines	...	...	G. Corbett
Conseil sur la Culture et la Preparation du Tabac	...	...	"
Ce qu'il importe de connaitre sur les methodes de destruction employées contre les insectes	...	...	W. H. Edwards
La mouche domestique	...	...	A. Moutia
Notes sur les maladies du tabac.	...	...	E. F. S. Shepherd
L'acidite du sol et ses rapports avec la toxicite par l'Aluminium et la pourriture de la racine	...	...	N. Craig
De l'utilisation des phosphates dans les sols d'acidite moyenne	...	...	"
Extrait du Rapport Annuel du Departement de L'agriculture	...	...	H. A. Tempany
Appareil de Peck	...	...	L. Baissac
Notes sur la Coupe	...	...	"

LEGISLATION

The following Ordinances, Proclamations and Notifications were issued during the year :—

Ordinance No. 13 of 1926—To repeal Ordinances No. 19 of 1890 and No. 20 of 1920 and to authorize the Receiver General to refund certain taxes paid on land cultivated in tobacco.

Ordinance No. 15 of 1926—To empower the Colonial Government to raise a loan not exceeding the sum of Rs. 5,000,000 for the purpose of assisting the Sugar Industry of the Colony.

Ordinance No. 24 of 1926—To validate a resolution passed by the Council of Government and certain import duties levied on unmanufactured tobacco and on tobacco grown and produced in the Dependencies and to amend Schedule B of the Customs Consolidated Tariff Ordinance 1908.

Ordinance No. 28 of 1926—To amend the Mauritius Hemp Producers Syndicate Ordinance 1925.

Ordinance No. 29 of 1926—To amend the Societé des Chimistes de Maurice Ordinance 1925.

Proclamation No. 11 of 1926—Occurrence of *Phytalus Smithi* in certain parts of the district of Savanne.

Proclamation No. 19 of 1926—To add tobacco to item 80 of Schedule B of Ordinance No. 14 of 1908.

Proclamation No. 29 of 1926—To remit stamp duties and registration fees chargeable on instruments executed by or on behalf of the Ruisseau Rose Co-operative Credit Society.

Proclamation No. 31 of 1926—To prescribe the conditions under which tobacco seeds may be imported into Mauritius.

Government Notification No. 81 of 1926—Rule made under Co-operative Credit Societies Ordinance 1913.

Government Notification No. 103 of 1926—Tariff charges for chemical analyses.

Government Notification No. 117 and 256 of 1926—Regulations for the selection of Laureates, College of Agriculture.

Government Notification No. 297 of 1926—Prohibition of the importation into Mauritius of goats from Rodrigues Animal Diseases (Consolidation) Ordinance 1925.

EXPENDITURE AND RECEIPTS

The expenditure and receipts of the Department have been as follows :—

	Rs.	cs.
Personal Emoluments ...	82,588.30	
Maintenance of Gardens ...	15,468.90	
General Services ...	1,392.48	
Prevention of Plant Pests and Diseases ...	4,619.62	
Prevention of Animal Diseases ...	2,071.96	
Upkeep of Stock ...	7,131.31	
Establishment of Demonstration Plots ...	358.20	
Subvention to Societe Horticole ...	-1,000.00	
Travelling Expenses ...	9,497.49	
Miscellaneous Expenses Co-operative Credit Societies ...	24.84	
Maintenance of Food Plantations ...	854.80	
Maintenance of Experiment Stations ...	14,744.17	
Minor Industries ...	18,857.02	
Apparatus and Chemicals ...	3,294.86	
Nursery for economic plants ...	1,725.79	
Registration of Chemists Examination ...	4.33	
Destruction of Phytalus Smithi ...	56,957.33	
Experimental Station for Irrigation of canes ...	601.89	
Upkeep of plantation at Floreal ...	448.18	
Dairy { Capital Expenditure ...	1,789.14	
{ Upkeep Expenses ...	30,560.47	
Agricultural Shows ...	2,400.00	
Installation of Experiment Station, Beau Bassin ...	108.16	
Improvement to Laboratories ...	620.45	
Services rendered by the Railways ...	7,315.62	
Purchase of raw tobacco ...	14,874.85	
Total ...	<u>279,310.16</u>	

The receipts were :—

Sale of flowers and plants ...	4,740.64
Sale of Stock ...	1,129.50
Services of animals ...	35.00
Sale of eggs and poultry ...	222.36
Sale of milk, Cattle Station ...	1,637.60
Sale of canes ...	4,231.47
Analytical fees ...	505.50
Miscellaneous ...	745.22
Rent of Tea Plantation ...	500.00
Sale of tobacco ...	28,980.37
Contribution C.C.S. ...	1,219.75
Veterinary Fees (Customs) ...	1,058.00
Destruction of Phytalus Smithi (Customs) ...	36,243.15
Loans repaid by Co-operative Credit Societies ...	3,560.00
Interest on loans ...	142.40
Rent of Crown Lands at La Ferme and St. Martin ...	283.50
Sale of produce, Experimental Dairy ...	32,269.31
Sale of Sisal Fibre ...	2,847.35
Total ...	<u>120,351.12</u>

GENERAL

The Director of Agriculture continued to serve as a nominated member of the Council of Government, and as a member of the Forest Board. He also served as a member of the Fisheries Enquiries' Commission and of various Government Committees, and as Organising Vice President of the Agricultural Exhibition.

The Assistant Director served as a member of the Board of Director of the Mauritius Institute and as a member of the Fisheries Commission.

May 10th, 1927.

H. TEMPANY,
Director of Agriculture.

APPENDICES

- Appendix I—Meteorological data at the Departmental Stations.
 " II—Return of yields of Minor Economic Crops at Réduit and Pamplémousses.
 " III—Return of yields of Milk from cows at the Government Dairy.
 " IV—Distribution of Sugar Cane Diseases in Mauritius in 1926.
 " V—Experiments with Tobacco and Statement of Accounts of the Government Tobacco Factory for 1926.

APPENDIX I.

METEOROLOGICAL OBSERVATIONS MADE AT THE STATIONS UNDER THE CONTROL OF THE DEPARTMENT OF AGRICULTURE FOR THE YEAR 1926.

Stations	Réduit						Curepipe						Abercrombie						Pamplémousses	
	Temperature			Relative Humidity	Rainfall		Temperature			Relative Humidity	Rainfall		Temperature			Relative Humidity	Rainfall		Depth of rain	No. of days
	Max.	Min.	Mean		Max.	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.	Min.		Depth of rain	No. of days		
Months	°C	°C	°C	%	m/m	No. of days	°C	°C	%	m/m	No. of days	°C	°C	%	m/m	No. of days	m/m	No. of days	m/m	No. of days
January	28.5	22.3	24.9	74	151.6	25	24.5	20.4	86	350.5	28	31.7	24.2	63	98.5	13	106.7	17		
February	28.7	21.8	24.6	74	123.6	23	24.5	20.5	87	204.0	24	31.5	24.4	63	103.0	14	97.5	16		
March	28.7	20.8	24.2	70	96.3	22	24.7	19.9	86	223.0	26	32.7	23.6	60	71.5	10	49.8	7		
April	27.3	20.9	23.4	75	295.5	30	23.3	19.6	88	627.5	29	29.6	23.1	68	312.0	14	248.5	21		
May	24.9	17.6	20.7	76	117.4	30	20.6	15.9	89	273.8	29	27.4	19.6	67	111.5	12	149.8	18		
June	23.1	16.7	19.5	78	71.6	27	19.1	15.3	90	340.2	30	25.9	19.7	65	49.5	18	89.5	23		
July	22.6	16.1	18.9	72	116.3	27	18.5	15.4	87	303.0	29	25.5	18.0	61	75.2	15	109.8	18		
August	22.3	16.4	18.9	77	120.5	25	18.6	15.5	89	309.5	27	25.5	19.2	65	80.0	12	114.0	13		
September	24.1	15.9	19.5	67	9.5	16	19.6	14.1	84	63.3	28	27.5	18.7	58	4.6	5	6.2	4		
October	25.1	15.5	20.0	62	44.0	22	20.1	14.3	77	105.2	22	28.4	18.1	54	28.2	6	29.8	6		
November	26.3	18.3	21.7	69	182.1	22	22.0	16.6	80	440.1	19	29.0	22.0	65	172.7	10	212.5	12		
December	27.8	20.3	23.4	67	187.1	25	23.1	18.4	85	317.0	25	30.8	21.9	63	87.5	14	174.3	6		
Year	25.8	18.5	21.6	72	1515.5	294	21.5	17.2	86	3557.3	311	28.8	21.0	63	1194.1	143	1388.4	166		
					Total					Total					Total		Total			

Remarks:—The figures for relative humidity are obtained from the means of readings taken daily at 10 h. and 15 h: Temperature at Réduit is derived from the hourly measurements given by a thermograph standardised daily at 6 h., 10 h. and 15 h.

APPENDIX II.

Results of experiments with Economics other than sugar cane at the Central Experiment Station, Réduit, and the Royal Botanical Gardens, Pamplémousses, during the season 1926.

Name of variety	Réduit Ks. per acre	Pamplémousses Ks. per acre	Mean Ks. per acre
<i>Experiments with Eddoes and Tannias</i>			
Tannia blanche	22,400	...	22,400
Tannia yellow	31,280	3,740	17,510
Tannia white	22,780	4,760	13,770
Tannia Priete	22,780	3,060	12,920
Tannia blanca	20,600	4,080	12,340
Tannia boliza	20,700	3,740	12,220
Eddoe dasheen	18,360	4,760	11,560
Violet	340	...	340
<i>Experiments with yams</i>			
Crops	5,602	5,913	5,757
Sealed top	5,553	5,713	5,633
Oriental	4,608	6,563	5,585
Bottle neck	5,100	4,836	4,968
Lisbon	3,639	4,087	3,863
Cush cush	2,967	4,000	3,483
Iberns	4,776	1,888	3,332
Danish	1,066	5,288	3,177
Fugue	2,890	3,160	3,025
Bugle horn	4,892	531	2,711
Light red	1,112	3,934	2,523
Cush	585	2,817	1,701

Name of variety	Result Ks. per acre	Pamplenesses Ks. per acre	Mean Ks. per acre
<i>Experiments with Manioc</i>			
Yellow bell	...	9,031	9,031
Cabesadura	...	5,950	5,950
Pacho 3	...	5,843	5,843
Trinidad	...	5,780	5,780
Constantin	5,440	4,250	4,845
Cassava bureum	3,740	5,631	4,685
Bitter ...	...	4,250	4,250
Bobby handsome	...	4,250	4,250
Cotton tree	...	3,931	3,931
Icery ...	3,060	4,143	3,601
Rodney	...	3,506	3,506
Mullings	...	3,400	3,400
No. 29...	...	3,400	3,400
Negrta 11	...	3,293	3,293
Manioc de table No. 2	3,060	...	3,060
Blue beard white	...	2,890	2,890
Negrta 12	1,360	3,612	2,486
" 17	2,040	2,868	2,454
Bunch of meys	...	2,443	2,443
Trinidad II	1,020	3,506	2,263
Singapore	2,040	2,337	2,188
Manioc de table	1,700	2,201	1,965
Trinidad I	1,360	2,550	1,955
Paloma	1,020	2,868	1,944
Australie	1,700	1,864	1,782
Blue Top	...	1,381	1,381
Smallings	...	1,062	1,062
Trinidad III	680	1,593	1,136
Federated Malay States	680	1,487	1,083
Blanchite	...	956	956
Butter Stick	680	1,168	924
Negrta 15	340	1,168	754
<i>Experiments with Ground Nuts</i>			
Virginia running	3,229	2,199	2,714
Big Japanese	2,348	...	2,348
Virginia Bunch	2,796	1,812	2,304
Virginie	1,359	2,629	1,994
Spanish Peanut	2,403	1,354	1,878
Local ...	2,446	1,218	1,832
Gambia	2,026	1,284	1,655
Refusque	...	1,002	1,002
Bunch	...	966	966
Tennessee	920	190	555
Name of variety	Result Ks. per acre	Pamplenesses Ks. per acre	Mean Ks. per acre
<i>Experiments with Maize</i>			
22 rows impure	417	...	417
20 " "	626	...	626
18 " "	1,054	...	1,054
18 " pure	725	...	725
16 " impure	490	...	490
16 " pure	98	...	98
14 " "	1,367	...	1,367
12 " "	1,433	...	1,433

Experiments with sweet Potatoes

Name of Variety	Reudit Ks. per acre	Pamplémousses Ks. per acre	Mean Ks. per acre
No. 16	6,541	...	6,541
No. 5	5,892	...	5,892
Egyptian Plantation	5,862	...	5,862
No. 17	5,862	...	5,862
No. 18	5,352	...	5,352
No. 4	4,333	...	4,333
Pumpkin Yam	7,221	1,223	4,222
No. 15	4,163	...	4,163
Black Spanish	4,163	...	4,163
No. 13	3,823	...	3,823
No. 6	3,823	...	3,823
Southern Queen	6,541	1,087	3,814
Georgia Yam	5,692	1,903	3,797
Yoes	6,881	679	3,780
Red Bermuda	6,032	1,359	3,695
Spooner	4,333	2,446	3,389
Bourbon	5,012	1,223	3,117
Sealy's Seedling	5,522	679	3,100
Jaune	5,097	1,087	3,092
Jersey	3,483	2,582	3,032
Hen and Chickens	3,738	2,039	2,888
Elijah	2,973	2,718	2,845
Trinidad II...	4,163	1,495	2,829
No. 2	2,548	...	2,548
No. 7	2,548	...	2,548
Egyptian White	4,163	815	2,489
Florida	3,823	1,087	2,455
Pierson	3,653	1,223	2,438
Barbadoes Barrel	3,993	815	2,404
No. 3	2,378	...	2,378
No. 1	2,293	...	2,293
Chully	2,293	...	2,293
Gandia	1,699	2,854	2,276
Trinidad III	3,993	407	2,200
d'Arifat	3,823	407	2,115
Turkey class	3,823	407	2,115
Red Jersey	...	1,903	1,903
Trinidad IV	2,293	1,223	1,758
Trinidad I ...	3,143	135	1,639
Rouge	3,143	135	1,639
No. 14	1,444	...	1,444
Shangai	1,784	1,087	1,435
Bigstain Jersey	...	1,223	1,223
Blanche	1,869	543	1,206
Egyptian Bebai	764	223	993
Violet	...	679	679
Raisin	...	135	135
Egyptian Iskandation	...	135	135

Planted July 1925—Reaped April—May 1926

Planted December 1925—Reaped May 1926

Experiments with Potatoes

Name of variety	Reudit Ks. per acre	Pamplémousses Ks. per acre	Mean* Ks. per acre
<i>Treated with Bordeaux Mixture</i>			
Nothing	1,988	...	1,988
Sulphate of Ammonia	2,225	...	2,225
Nitrate of Potash	1,648	...	1,648
Superphosphate	1,834	...	1,834
Superphosphate and Nitrate of Potash	1,835	...	1,835
Super : N of Potash & Sulphate of Ammonia	2,208	...	2,208
<i>Without Bordeaux Mixture</i>			
Nothing	424	...	424
Sulphate of Ammonia	475	...	475
Nitrate of Potash	355	...	356
Superphosphate	441	...	441
Superphosphate and Nitrate of Potash	137	...	137
Super : N of Potash & Sulphate of Ammonia	577	...	577

APPENDIX III.

GOVERNMENT DAIRY—CUREPIPE—RETURN OF MILK YIELD DURING THE YEAR 1926.

MONTHS	Carnation	Barkly	Aster	Larkspur	Geranium	Violet I	Clara	Rose	Cornflower	Hedda	Candos	Daffodil	Tulip	Poppy	Lobelia	Shamrock	Thistle	Cedara I	Cedara II	Cedara III	Eisenburg	Pretoria II	Pretoria I	Bertha	Jantji	Solveig
January	278½	250½	218	279½	470	201	186	426	186½	21	225½	203½	248½	63	229	314	98	262	157	...	141½	129½	102½	171	85	118
February	257	274	182½	242	395	181	169	368	134½	...	190	180½	222	...	178	266½	5	240	121	...	48	159½	104½	168	51	93
March	261	270	197½	239½	405	201	154	392½	...	...	172	170½	231	...	198½	282½	138½	267½	118½	...	139	156½	105	66½	...	...
April	217	219	98½	196½	328½	177	128½	307½	...	72½	155	156	186½	...	131	241	425	252½	108	...	316	69	76	died	...	...
May	177	died	...	92	326	156½	101	267	...	158	144½	120½	154½	...	51	226	428	222½	121	...	297½	...	40	...	165	...
June	21½	...	...	100	238	122½	88½	221	...	151	135½	15½	49	...	...	167	376½	67	37½	...	236½	57	...	...	342	...
July	38½	...	44½	343	77	109	80½	died	...	160	117½	...	...	...	...	201	314	130	...	...	238	441	...	...	362½	died
August	209	...	479½	477½	157	108	78½	...	...	162½	126½	35½	...	...	...	204	222	500½	...	...	250½	382½	216	...	368	...
September	245	...	427	449	253½	85½	0	...	...	149	117½	577	...	...	...	178	228½	461	...	...	209	325½	242	...	345½	...
October	281	...	397	457	278	45½	...	...	...	148½	126½	634	227½	...	...	179	212	400	...	344½	147½	291	187	...	334	...
November	270	...	341	420	257½	7½	...	...	...	142½	107½	651½	526	...	...	126½	276½	358	...	344	136	239½	125½	...	281	...
December	217½	...	93	378	256	...	82½	...	...	117½	21½	412½	530	...	...	16	139	337	...	305½	167	224½	104½	...	141½	...
TOTAL	2,458	1,022½	2,873½	3,773½	3,442½	1,395½	1,062½	1,982	321	1,282	1,620	3,056	2,415½	63	782½	2,321½	2,702	3,498½	668½	994	2,327	2,539½	1,330	395½	2,468½	211

APPENDIX III—(Continued)

MONTHS	Hilda	Bet	Charlotte	Bianca	Narcissus II	Narcissus I	Nora	Eva	Violette II	Dahlia	Thora	Elsa	St. Pierre	Curepipe	B. Bassin	R. Hill	B. Belle	Souillac	Q. Hornes	Vacoss	Flacq	Mahebourg	Princess III	Katrina	Daisy	Total	
January	344½	260	130½	201	174	75	484½	223	161	178	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7,525	
February	309	257½	113	253	158½	58	397	360	222½	219	131½	48	...	...	...	...	...	...	...	...	...	...	...	...	...	6,739	
March	347	278	105½	248½	138	36	398½	421	241	255	260½	404½	103½	97	88½	63½	127	58	111½	...	...	75½	...	...	...	8,011	
April	321	233	5	231½	51	...	371	417	228	219½	266½	382	215	256	160	105	231	99½	250	333½	...	139	...	...	504½	8,889	
May	258½	197	...	224	...	...	377	329	220	220½	206	395	210	224	156	70	250	13½	260	212	125	73	68½	...	...	629	7,965½
June	127	93½	...	179	91	...	316	310	204	179	180	360½	135	197½	114	died	200	...	236½	died	260½	...	died	...	...	541	6,130½
July	100½	211½	51	167½	145½	...	325	328	212½	128	183	366½	139½	204½	121½	...	242½	...	255	...	269½	47	...	...	...	528½	7,078
August	399½	276½	312½	114½	205	...	328	320½	222	74	161½	377	70	238½	101	...	237	...	252½	...	273½	228½	...	...	...	514	8,716
September	39C½	262	279	130½	197	...	296	315	200	...	105	368½	...	194½	86	...	235	...	240	...	251½	260½	...	...	...	455½	8,558
October	385½	277	241	143½	199½	...	287½	332	195½	...	49	349½	...	171½	9½	...	217	...	196½	...	235½	287	...	...	...	464½	8,734½
November	345½	308	260	53½	180	...	287	292	182	...	8	312	...	150	70½	...	198	...	died	...	204	265½	...	...	...	364	7,834½
December	362	328½	188	...	177½	...	274	277	190	...	...	264½	257	149½	378½	...	181½	...	...	...	207½	265	...	...	33	316½	7,378½
TOTAL	3,881½	2,986½	1,625	2,064½	1,711½	169	4,141½	8,926	2,478½	1,477	1,511	3,617	1,138	1,883	1,280½	228½	2,118	171	1,803	545½	1,827	1,640½	68½	33	4,308	93,504½	

DEPARTMENT OF AGRICULTURE

APPENDIX IV

Distribution of Sugar Cane Diseases in Mauritius in 1926.

District	Gumming	Pine apple disease	Smut	Root Disease	Bed Rot	Heart Rot	Collar Rot (suspected)	Bunch Top	Streak	
									on cane	on grasses
Flacq	Ten Estates Varieties attacked: White Tanna, M. 55, M. 87, M. 80, M. 33, M. 131, D. K. 74, R. P. 8, Louzior	Six Estates Varieties attacked: numerous	One Estate Varieties attacked: M. K. 74, D. 131	None reported	Five Estates Varieties attacked: D. K. 74, M. 131, R. P. 6, M. 55	None reported	None reported Variety	Three Estates attacked: White Tanna	Two estates Variety Setaria sp. RP 8	Nine estates species affected: Digitaria spp.
Rivière du Rempart	Two Estates Varieties attacked: White and Striped Tanna, M. 33.	One Estate Varieties: numerous	Five Estates D. K. 74, White Tanna, Striped Tanna, R. P. 8	One Estate Variety attacked: D. 130	None reported	None reported	None reported	None reported	Four estates Variety attacked RP 8	Two estates Species affected: Setaria sp. Digitaria spp.
Pamplemousses	Three Estates Varieties attacked: M. 55, M. 87, M. 131	One Estate Varieties: numerous	None reported	One Estate Variety attacked: D. 130	None reported	None reported	None reported	None reported	Two estates Variety attacked RP 8	Two estates Species affected: Cenchrus echinatus and 2 unknown
Grand Port	Nine Estates Varieties attacked: White Tanna, M. 55, Louzior, M. 87, M. 33, Port Mackay.	Three Estates Varieties: numerous	One estate Variety attacked: M. 131	None reported	Two Estates Varieties attacked: M. 33, D. K. 74, M. 131, M. 87	One Estate Varieties attacked: M. 55 & White Tanna	None reported	Two Estates Varieties attacked: White & Striped Tanna	None reported	Three estates Species affected: Setaria sp. Digitaria sp.
Savanne	One Estate Variety attacked: White Tanna.	One Estate Variety attacked: White Tanna	One Estate Variety attacked: M. K. 74	One Estate Variety attacked: D. K. 74	One Estate Variety attacked: D. K. 74	One Estate Varieties attacked: M. 55, M. 131, & White Tanna	None reported	None reported	None reported	Two estates Species affected: Setaria sp. Digitaria sp.
Moka	Three Estates Variety attacked: White Tanna	None reported	None reported	None reported	None reported	None reported	None reported	None reported	None reported	one reported
Black River	Six Estates Varieties attacked: Port Mackay, M. 87, White Tanna, D. K. 74	Four Estates Varieties attacked: numerous	Five Estates Varieties attacked: M. 55, D. K. 74, M. 131	One Estate Varieties attacked: various	One Estate Variety attacked: White Tanna	None reported	One Estate Variety attacked: undetermined	None reported	None reported	Seven Estates Species affected: Setaria spp, Croix lachryma, Cenchrus echinatus Paspalum conjugatum, Digitaria marginata, D. horizontalis.
Plaines Wilhelms	Two estates Varieties attacked: White Tanna, M. 55,	One Estate Varieties attacked: numerous	One Estate Variety attacked: M. 131	One Estate Varieties attacked: various	None reported	None reported	None reported	None reported	None reported	Three Estates Species affected: Setaria sp, Paspalum conjugatum, Digitaria marginata, D. horizontalis

APPENDIX V

ANNEXURE I

Manurial Experiment with Tobacco Central Experiment Station, Reduit.

Variety	Plot Treatment	Area	Yield	Yield per acre dry leaf	Remarks	
Sterling A	Lime 2 tons per acre	0.25	13.7	548	Farmyard manure applied throughout at the rate of 10 tons per acre.	
" B	Lime as above	"	6.7	268		
" C	Nitrate of potash 100 lbs per acre Supers 300 lbs per acre	"	8.5	340		
" D	Nitrate of Potash } as above Supers	"	8.5	340		
Joiner A	Lime 2 tons per acre	"	10.5	420		
" B	Lime as above	"	5.2	208		
" C	Nitrate of potash 100 lbs per acre Supers 300 lbs per acre	"	7.7	308		
" D	Nitrate of potash } as above Supers	"	7.0	280		
"	...	"

Variety trials, Royal Gardens, Pamplémousses

	acre	Kilos	Kilos	
Blue (local seed) Pen manure 12 tons per acre ..	115	35.75	308.9	} Fire cured
" (Bourbon ") " " " " "	"	30.55	206.04	
Yellow Pryor " " " " " "	"	25.33	218.65	
Sterling " " " " " "	"	23.64	204.35	
Joiner " " " " " "	.086	10.65	91.59	

Analysis of leaves from Tobacco experiments.

Variety	Plot treatment	LEAF ANALYSIS					ASH ANALYSIS					Remarks
		Resins and Fats	Albuminoids	Nicotine	Ash including SO ₂ and CO ₂	Silica	Chlorine	Sulphates	Magnesium	Lime	Potash	
Sterling ...	Plot A	2.78	19.94	3.19	23.93	.16	11.19	2.94	12.34	23.97	22.69	
" ...	" B	2.71	23.66	3.34	21.04	.25	12.42	3.10	12.40	24.30	22.45	
" ...	" C	2.43	27.7	3.52	18.97	.13	14.5	3.10	14.16	26.41	21.49	
" ...	" D	3.43	21.1	3.60	20.98	.36	13.85	3.15	11.74	26.07	22.87	
Joiner ...	" A	3.52	24.93	4.05	21.78	.15	11.64	4.11	9.09	24.02	25.99	
" ...	" B	3.13	23.9	2.83	21.13	.18	10.16	3.44	12.89	26.64	20.02	
" ...	" C	2.89	21.18	2.76	22.55	.14	11.75	3.46	10.65	23.54	25.42	
" ...	" D	2.93	24.05	3.78	22.05	.14	12.61	3.66	9.51	24.04	21.71	

ANNEXURE II

Variety trials, Royal Botanical Gardens, Pamplémousses.

Variety	Plot treatment	Area	Yield		Remarks
			sq. yards	kilos	
Gold Leaf ...	Pen manure 10 tons per acre	308	14.75	231.76	This plot planted 3' x 3'
" " ...	" " " " " "	616	16.05	251.68	" " 3' x 2'
Blue Pryor ...	" " " " " "	616	34.60	272.25	" " 3' x 3'
R.R.R. Burley...	" " " " " "	1/44th	13.2	580.8	" " 3' x 1 1/2'

ANNEXURE III

Statement of Accounts for year 1926.—Government Tobacco Factory

	Rs.	o		Rs.	os.
Stock on hand on 31.12.25 ...	17,822	25	Sales ..	29,199	21
Salaries ...	2,070	...	Kiosk profit ...	101	66
Wages ...	2,789	82	Stock on hand on 31.12.26 ...	16,687	25
Fuel ...	394	45			
General Expenses ...	652	36			
Purchases ...	14,707	89			
Balance being nett profit ...	7,551	35			
	Rs. 45,983	12			

The total sales from the Factory and Kiosk were as follows:

	Factory	Kiosk
Tobacco large packets 250 grams ...	5,555	819
" small " 125 " ...	26,249	1,413
" " " 100 " ...	1,900	64
Tins of Dodo Cigarettes ...	2,890	497
Packets of Dodo cigarettes ...	129	70
Tins of Dodo " B " cigarettes ...	1,801	1,708
Dust ...	Ks. 1,928	...
Midribs ..	1,218.5	...
Inferior leaves ...	395.83	...

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COLONY OF MAURITIUS
ANNUAL REPORT
OF THE
DEPARTMENT OF AGRICULTURE
FOR THE YEAR 1924.

Rab. 1028
14/25

THE HONOURABLE THE COLONIAL SECRETARY,

I have the honour to submit the report on the Department of Agriculture and on Agricultural conditions in the Colony for the year 1924.

PART I

AGRICULTURAL CONDITIONS IN 1924

The weather conditions experienced during the growing and harvesting seasons are summarised in the annexed tabular statement :

<i>Month and Year</i>	<i>Temperature</i>	<i>Rainfall</i>
1923		
November	... Above normal	... Markedly above normal
December	... Above normal	... Generally above normal
1924		
January	... Below normal	... Above normal
February	... Normal	... Generally above normal
March	... Below normal	... Above normal
April	... Normal	... Generally below normal
May	... Normal	... Normal
June	... Normal	... Below normal
July	... Above normal	... Above normal
August	... Above normal	... Considerably above normal
September	... Below normal	... Below normal
October	... Markedly below normal	... Markedly above normal
November	... Below normal	... Below normal
December	... Above normal	... Above normal

Weather conditions were thus markedly unfavourable during the harvesting and milling season. As a result although the tonnage in the field was, as a rule, excellent, the sucrose content of the cane was considerably below normal.

SUGAR INDUSTRY

The preliminary compilation of factory results for the crop of 1924 gave a total of 221 thousand tons evincing thus a reduction of approximately 7% on the normal.

The low lying districts have been especially unfavourably influenced by the weather conditions which prevailed during the winter season; thus in the upper district of Plaines Wilhems the extraction of sugar per cent of cane approximated to 10.6%, but in the North, it was, in the mean, about 10.2% and in the South 10.1%. The average extraction for the whole Island approximated to 10.2.

There is no doubt that this remarkable decrease in the extractions in the low lying districts is solely responsible for the pronounced deficit in the production of sugar for the year; in the upper districts, the outturn has been quite up to expectation.

The following figures give the preliminary results of the compilation of factory returns, compared with the total output for the seven preceding years.

Sugar Production in Thousand Metric Tons

Districts	1924 Pre-liminary results	1923	1922	1921	1920	1919	1918	1917
Pamplemousses & Riv. du Rempart	45.3	42.27	54.93	48.43	59.16	50.63	64.22	49.4
Flacq - - -	38.5	35.51	39.56	33.77	45.35	36.86	43.69	39.7
Moka - - -	31.0	31.34	29.39	28.04	37.58	35.24	34.70	31.7
Plaines Wilhems -	19.7	15.01	20.95	14.54	21.36	19.38	19.34	17.9
Black River -	9.0	7.17	8.65	6.15	7.57	6.54	6.25	6.5
Savanne - - -	37.1	33.64	35.38	31.71	41.55	43.33	40.81	38.5
Grand Port - -	40.4	36.61	42.33	34.78	47.30	43.21	43.76	42.3
Total - - -	221.0	201.55	231.19	197.42	259.87	235.19	252.77	226.0

Yield of Vesou Sugar.—Of the estimated total of 221 thousand tons, 98% will, it is anticipated consist of vesou sugar while low products will probably reach about 2% of the total. The following table exhibits the progress in this connection for the past 10 years.

Year	% Vesou	Year	% Vesou
1915	82.60	1920	95.46
1916	80.23	1921	95.98
1917	89.85	1922	97.20
1918	94.50	1923	97.61
1919	94.45	1924	98.0 (Estimated)

Factory work in 1924-25.—Owing to unfavourable weather conditions during the ripening season, the average extraction of sugar per cent of cane was considerably below normal in 1924. The general figure for the whole Island is estimated at 10.2. Results for the previous decade are as follows:—

Year	Commercial Sugar extracted % Cane	Year	Commercial Sugar extracted % Cane
1915	10.83	1920	10.76
1916	10.30	1921	9.90
1917	10.62	1922	10.58
1918	10.95	1923	10.51
1919	10.42	1924	10.20 (Estimated)

Factories conditions in 1924.—The tendency towards centralization continues to make itself felt. At the end of the present campaign, two more factories will be closed, viz: *Plaisance* in Grand Port and *Bon Air* in Pamplemousses; in 1925 there will thus be 48 factories operating in the Colony, as compared with 59 in 1914. It is clear that as time goes by centralization to an increasing degree must be the rule, practically no factory in Mauritius as yet works at its full capacity and the stress of modern conditions is bound eventually to lead to the elimination of the weaker usines until all the more modern factories are working at approximately full capacity.

Improvements and amelioration to factory buildings and equipment were carried out on several Estates during the year. The importations of new Sugar Machinery during the year amounted to Rs. 2,172,721 while tramway material to the value of Rs. 1,168,259 was imported. In addition small quantities of machinery were manufactured by local foundries.

Of new processes tried one factory experimented very successfully with the Roussel process for the filtration of the whole of the juice after treatment with Sulphur and Lime.

Philippe filters have increased their popularity during the year and several factories have installed them for the first time this crop.

In two factories filters of this type specially designed for filtration in vacuo have been installed between the 3rd and 4th vessels of the quadruple effect and have proved successful in the reduction of scale in the last body and in the production of a clear clairce. The use of Phosphoric acid in the clairce is finding a wider application and a few factories have installed new settling tanks for use in this connection.

During the latter part of the year, Mr. R. G. W. Farnell, B. Sc., Chemist to the British Empire Sugar Research Association visited the Colony; Mr. Farnell was given laboratory accomodation at the Department of Agriculture and the Officers of the Department gave assistance with his work. He attended meetings of the Chamber of Agriculture, the Société des Chimistes, and visited a large number of factories. The result of Mr. Farnell's visits has been to attract increased attention to "Indicator methods" for determining the Hydrogen Ion concentration of sugar house liquors in the control of Sugar manufacture, (a point which had already been studied to some extent by the Sugar Technology Division of the Department of Agriculture during the previous crop) and to the question of the colloid contents of cane

juices. As a result 10 factories have so far taken steps to procure the necessary equipment for the control of the acidity of their juices by the Hydrogen Ixon indicator method, the introduction of these methods if properly applied should assist in improving the quality of factory work and of the final product.

The Bach process was not operated during the year; it was found that although the process resulting in producing a sugar of a distinctly higher grade, the practice of selling sugar by standard grade precluded any increased return for the additional cost of the process. The possibility of introducing a special higher grade of sugar in addition to the existing standards has been discussed, but so far no action has been found possible. In this connection some interest attaches to the effort that will be made at the British Empire Exhibition in 1925 to bring specially good Mauritius white sugar to the notice of the grocery trade in England for direct consumption.

Area under cultivation.—At the end of 1923 the area under cane cultivation approximated to 164, 100 arpents (171,200 acres) the decrease compared with 1923 being 2,300 arpents.

Under present economic conditions the area under cane will probably diminish further; figures for 1924 are not yet available, but it is anticipated that a further decrease of the same order as that seen in 1923 will be recorded in 1924, as many large Sugar Estates have reduced their area under cane cultivation.

Sales of proprieties by morcellement took place in four localities during 1924; it is estimated that the total area disposed of in this way is approximately 1,600 acres.

Indian Cultivation.—At the end of 1923 the area cultivated in cane by Indian Planters was estimated at 73,600 arpents (76,800 acres). This area reached a maximum in 1921 when 79,000 arpents of cane (46% of the total cane cultivation) were cultivated by Indians. In 1913 the corresponding figure was 54,900 arpents. With the fall in Sugar prices and the general diminution of the area under cane, Indian cultivation has also diminished but to a less extent than non-Indian. The proportion of Indian to total cane cultivation was in 1923, 44.4%.

Of the total area cultivated by Indians it is estimated that 51,000 acres represent lands owned by Indians, 20,000 acres represent lands occupied in morcellement of which the final instalments have not yet been paid, and 6,000 acres represent lands leased from Estates or Government on a yearly rental.

Disposal of Sugar Crop.—The Sugar Planters' Syndicate continued operations during the year and controlled more than 85% of the sugar production of the Colony. The mean prices at which the sugar crops for the years 1920 to 1923 have been sold are given below:—

1920-21	...	...	Rs. 50.68 per 50 kilos net
1921-22	...	...	12.05 do.
1922-23	...	...	13.86 do.
1923-24	...	...	18.94 do.

The mean sale price for 1924-25 will be approximately Rs. 12.50 per 50 kilos; it should however be added that in previous years the Mauritius exchange value for the Rupee closely followed that of India. In 1924-25 on the other hand the local exchange rate in relation to sugar sales averaged Rs. 14.50 to the Pound Sterling while the India exchange approximated to Rs. 13.30 for the Pound Sterling during the same period. Had the exchange followed that of India, the sale price would have been approximately Rs. 11.45 per 50 kilos.

Since the war and until the year just concluded the bulk of the sugar exportation has gone to Europe, the majority having been exported to Great Britain. In 1924 a considerable resumption of exportation to India occurred, due in the first place to the modification in the British preferential tariff which took place in 1924 and which caused the Indian market to offer greater advantages. Exportations of sugar to Europe and to India for the past three years have been as follows:—

<i>Crop of</i>	<i>Export to India</i>	<i>Total Export</i>
1922-23	- 267 tons	- 205,382 tons
1923-24	- 2,300 "	- 180,773 "
1924-25 (to date of writing)	- 138,816 "	- 178,451 "

Conditions affecting the sugar Industry.—Labour again proved the most important factor in the economic situation. The high prices obtained for the crop 1923-24 served once more to accentuate labour tension during the crop period of 1924. The Importation of labour from India, of which considerable hopes were entertained, gave disappointing results, partly by reason of the terms under which labour was imported and partly because the type of men imported were not satisfactory. By the end of the year many imported labourers had returned to India, and it seems probable that shortly all will be repatriated.

In December an Official Delegate of the Government of India, Mr. Kunwar Maharaj Singh, C.I.E., visited Mauritius for the purpose of reporting on the labour situation.

There is little doubt that sufficient labour exists in the Colony to meet actual needs; the apparent shortage is due to the wave of abnormal prosperity which has passed over the Island and which has rendered the labouring classes unwilling to work while the situation has been rendered more difficult by organisation among workers, which has not as yet found its counterpart in organisation among employers of labour.

Owing principally to this factor the cost of production of Sugar still remains at far too high a figure, and for the crop 1924-25 was on the average not below Rs. 11 per 50 kilos of Sugar.

Instrumental Cultivation.—Of all the directions in which economies of labour can be effected none is so important as the employment of tractors, ploughs and implements. In this connection a number of important advances were recorded during the year; among these is the formation of a definite organisation between a group of 10 estates for the purpose of providing expert guidance in relation to matters affecting the use of tractors and implements.

Ploughs and tractors to the value of Rs. 186,235 were imported during the year, the number of estates employing ploughs and implements has augmented, and there is a noticeable increase in the tendency on the part of Estate managers to try new forms of implements and to evolve modification of existing implements suited to local conditions.

The desideratum of a plough which will make a square sided furrow for planting, continued to attract attention, and by the end of the year one estate had actually imported a plough designed by Messrs. Mac Laren & Co., with this object in view. The performance of this implement will be watched with considerable interest.

Another estate has also imported an implement designed to do similar work but results have so far not proved satisfactory. On the other hand several estates have experimented with a modification of the Oliver double mould board tractor plough with extension pieces bolted to either side of the two breasts. This implement produces a wide deep furrow with a slightly curved bottom, in which planting is performed without any cleaning of the furrow by hand. Several hundreds of acres have this year been planted in this way, and in the writer's opinion procedure on these lines will probably ultimately constitute the solution of the problem. The round bottom furrow for planting is accepted as satisfactory in most cane producing countries, and it is difficult to see how or why insistence on a square sided furrow is likely to influence the ultimate yield of cane per acre, which is after all the principal criterion.

Much attention has also been devoted on certain estates to the possibility of finding some form of plough which would satisfactorily bury cane straw in fields that are being prepared for plantation. As a result the Mon Desert S. E. Co., during the year caused to be built an implement designed to perform this operation, based on specifications of a machine used on the Pepeeekes plantation in Hawaii, furnished by Mr. Louis Baissac, Sugar Technologist of the Department of Agriculture, and modified by Mr. Julien de Speville, Manager of Mon Desert and Mr. Henri Pitot, ploughing expert to the group of estates mentioned above. In its final form the implement consisted of:—An Oliver double mould board plough with extension pieces bolted to the top of the breasts preceded by a row of disc caulkers set at different heights which cut up the trash into short lengths, and thus facilitate ploughing in.

The implement was tried on a considerable scale at Mon Desert Estate and gave very satisfactory results.

For uprooting cane stools and preparing land for planting, local opinion has definitely accepted the two or three furrow disc plough as the most suitable implement, particularly on account of its ability to withstand the rather rough conditions which are met with in ploughing cane lands in Mauritius, and which are apt to cause considerable damage to shares or breasts in the mould board type of implement. At present the best plough for this kind of work has been proved to be Ransome's three furrow disc plough.

For ploughing out cane stools and making furrows for planting, Caterpillar tractors are practically exclusively employed, the No. 1 Cletrac tractor being used on the majority of estates. Three estates employ Renault tractors for this form of work, while one estate is now using a Sanderson wheel tractor with very satisfactory results, other wheel type tractors have not so far met with any great degree of acceptance, the types so far tried, viz: the Austin and the Fordson are in the general opinion of planters too light and underpowered, for work in Mauritius soils. It should however be mentioned that an Austin tractor working with a two furrow mould board plough has given fairly satisfactory results during two years at the Reduit Experimental Station for uprooting cane stools and furrowing.

It is believed by many however that heavier and higher powered wheel tractors may eventually prove more suitable than caterpillar tractors owing to the lower initial cost and smaller repairs bill. Experience with the Sanderson tractor on the single estate which has employed it so far tends to substantiate this view. Two other tractors of this type are expected shortly and the importation should lead to interesting results.

For weed eradication and deep cultivation in the interlines of growing canes, the No. 3 Cletrac tractor with an Oliver No. 36 cultivator is at present considered the most satisfactory combination. For keeping down weeds, various forms of horse hoe drawn by one or two oxen are now extensively employed. The use of oxen for this type of work necessarily causes it to be slow, but so far the employment of mules has been vetoed on account of their liability to Surra. If the campaign for the eradication of Surra at present being carried on by the Department of Agriculture gives the results hoped for, the employment of mules should eventually become possible once more and this would probably materially improve the situation.

The existence of large numbers of stones and boulders in cane fields in Mauritius is one of the chief difficulties in the way of the employment of tractors and implements. However many estates have set themselves to work to improve matters in this respect by rearranging

stones in rows or heaps suited to the work of tractors and ploughs, and it is a matter for astonishment in what apparently unpromising land, intelligent action in this respect has brought ploughing within the region of practical politics. In rearranging stones, tractors are also finding extensive useful application.

Another factor which has proved a source of difficulty in ploughing is the small size of the average cane field which has entailed much waste of time and fuel in the repeated turning of headlands. This defect is however being remedied slowly on these estates which have seriously taken in hand the solution of the problem by ploughing.

A third factor which influences the situation is that of obtaining really reliable labour for working with tractors and ploughs, and this has led to considerable loss of efficiency combined with much unnecessary wear and tear. In this respect also improvement is slowly making itself felt, and it is becoming realised that the employment of a good ploughman even though his wages may be high, is a real economy.

Exact figures for the cost of ploughing are so far not easy to obtain but available data indicate that at present the cost of uprooting cane stools and making furrows for planting averages from Rs. 15 to 25 per acre.

So far actual planting is still accomplished by hand but there does not seem any very obvious reason why one of the mechanical planting devices which are so widely used in Hawaii and also in Australia should not be successfully employed also. The same remark also probably applies to fertiliser distribution. In this connection mention may be made of a simple and ingenious device for applying molasses to canes, recently patented by Mr. H. Bourgault, Manager of Ferney Estate; it consists of a tank mounted on wheels of such breadth that they will conveniently pass between cane rows and is hauled by an ox; the molasses is delivered by two spouts the flow of which can be regulated according to the magnitude of the application which it is desired to make.

It may be expected that the more thorough aeration of the land due to improved cultivation will result in increased yields; data in this respect are still lacking but the Department of Agriculture has in hand a number of trials on some scale to test this point. It may be added that on at least one estate in the lower part of Savanne experience has proved that ploughing has had the effect of making the crop earlier, doubtless owing to the improved cultivation facilitating the removal of superfluous water and lessening the check due to chill from evaporation.

The present position in relation to implemental cultivation in Mauritius is full of interest, the developments which have taken place are very striking, and it is believed that in the end they will constitute the real solution of the labour problem of the place.

It is for this reason that they have been reviewed at some length.

Irrigation of Sugar Cane.—The area irrigated by the La Ferme reservoir remained approximately at 3,000 acres. Work on the La Nicolière scheme continued. This project is of very considerable magnitude, it will supply water for from 10,000 to 15,000 acres of land and will be comparable with some of the large scale irrigation undertakings of Hawaii. It comprises when complete three large storage reservoirs at La Nicolière, Midlands and Calebasses with a combined storage capacity of 1,115 million cubic feet of water, and an estimated total length of feeders and distributing channels of twenty miles.

The effect of this on the sugar producing regions of the West and North west will be considerable, but it must of necessity involve considerable modification of existing systems of agriculture.

Considerable progress was made on the second reservoir at Midlands; this is a work of considerable magnitude and is expected, according to information supplied by the Director of Public Works, to take from 8 to 10 years to complete. It is anticipated that during the current year some water will be impounded in the first reservoir at La Nicolière which will be delivered to the borderers of the Ville Bague Canal. So soon as work on the La Nicolière tank is complete, the making of distributories will be taken in hand and subsequently work on the third reservoir at Calebasses begun.

In so far as La Ferme is concerned the supply of water worked out satisfactorily, during the year, the reservoir was full by the commencement of March and remained full until the beginning of June. The full supply was maintained till June 30th and reduced by half from that date. By December 1st there still remained 102 million cubic feet in the reservoir, the total capacity of which is 416 million cubic feet.

The question of loss of water by seepage in feeders and distributories remains the principal problem in Mauritius as in most other countries where the distribution of irrigation water in earth channels is practised. To remedy this defect the Public Works Department has during the past two years undertaken the lining of certain sections with lime concrete and reports satisfactory results. In Hawaii similar trouble is reported as being dealt with by lining distributories with reinforced concrete slabs. Exact measurements of the losses occurring in this way are not available but they are estimated to amount probably to as much as between 50 and 60% of the flow in extreme cases. If to this is added losses which occur in earth channels on estates after the water leaves the Government distributories and before it reaches the fields, the total loss must be very large.

Work at the Irrigation Experiment Station was continued during the year and is now yielding significant results.

The five year period for which the scheme was inaugurated, terminates in 1926 and it is hoped that by the end of the present year the results which have been accumulated will enable a full report to be prepared. In the meantime it may be said that the most important point which has emerged is the fact that for every area of land there exists under definite conditions of irrigation a minimum quantity of water which must be delivered per acre, effectively to wet the entire surface. This factor varies greatly with different types of soil and also with the manner in which the water is applied, but, in any event, when the surface of the field has been effectively wetted all over, the top 12 inches or so of soil, retain water to their maximum capacity; if heavier applications than this minimum are given, the excess percolates to deeper levels; there appears however to be relatively little transference of such excesses from the lower levels to the upper, as evaporation and absorption by the roots of plants reduce the supply of the upper levels.

So far as can be seen at present under Mauritius conditions, the water content of the top layers of the soil begin to be reduced to a point capable of affecting absorption by the plant after one week's interval from the date of application; consequently it appears that the most satisfactory way of applying water is at intervals of about one week, giving at each application the minimum quantity of water the soil can take; larger applications at longer intervals merely entail loss of water and lead to reduced yields.

It is interesting further to record that the ideal held up for irrigation practice in Mauritius is the standard of yield obtained under irrigation in Hawaii which is in the region of 90 to 100 tons of cane per acre, after about two years growth. At the Irrigation Experiment Station at Medine working under the most favourable conditions, yields of 50 tons of cane per acre in virgins and 40 tons of cane per acre in first ratoons have been obtained during a total growth period of 25 months, i.e. about equal to the Hawaiian returns during the same length of time.

Pests and Diseases of the Sugar Cane.—*Phytalus Smithi* continues to be the most serious insect pest of cane and the total number of beetles destroyed during the season 1923-24 amounted to 52,573,000. In the Pamplemousses area, infection continued to be intense in the neighbourhood of Beau Sejour and Mont Piton with a smaller separate sub-focus at Bon Air. In spite of all efforts it has not been found possible so far to reduce the infection to reasonable bounds at these points notwithstanding the expenditure of much effort and considerable sums of money. It is curious that while the introduced parasite *Tiphia parallella* has established itself very satisfactorily elsewhere and is greatly assisting in the work of control, it has not up to the present succeeded as well at Beau Sejour. A fact which may have some significance in this connection is the unexpected observation that beetles from the Beau Sejour and Mont Piton areas are markedly smaller in size than others. This may be due to the drier conditions there prevailing and may possibly affect the ability of *Tiphia* to establish itself on its host.

Steps have been taken to order a consignment of the Insecticides Calcium Cyanide and Paradichlor, which are reported to have given satisfactory results against white grubs in other countries, notably Queensland.

The small separate infection at Joli Bois is showing signs of steady diminution and gives no course of anxiety; in July 1924 a separate infection was discovered at Beau Bois in the district of Moka. Subsequently surveys and campaign work against the pest were undertaken and revealed that the infected area was much larger than was at first supposed; in consequence it became necessary to establish a quarantine over a considerable portion of Moka district.

Other plant pests and diseases have not been markedly in evidence, there have been reported one or two minor appearances of Red Rot, Gumming and Smut. Much attention has been focussed during the year on questions in relation to Cane Mosaic. At present Mosaic does not exist in Mauritius; in January 1924 a small consignment of Coimbatore seedlings which had been obtained from India and were growing in the Redit Nursery were noticed to have developed typical Mosaic; they were immediately uprooted and destroyed as were all the surrounding canes; it appears that these measures have fortunately eradicated the disease.

In the middle of the year accounts received from the neighbouring Island of Réunion indicated that Mosaic disease in a severe form probably existed in that Island; in view of the proximity of Réunion, and the large amount of intercourse existing between the two places, the Government of Mauritius, on advice of the Department and the Board of Agriculture decided to send the Botanist to Reunion to investigate matters. About the same time a request was received from the French Government for the loan of a qualified Officer to report on cane diseases in Reunion. The Botanist left for Reunion at the commencement of September and spent two months in that Island. His investigations showed that Mosaic existed to a considerable extent in Reunion particularly in the leeward districts and was responsible for very serious losses. As a result plant quarantine restrictions have been rendered more stringent. There is no doubt that the introduction of Mosaic in Mauritius would prove a very serious matter and would probably necessitate the abandonment of the practice of long ratooning locally practised. That the disease has not already gained an entrance is, I think, undoubtedly due to the quarantine restrictions on plant importation maintained by the Department of Agriculture during the past twelve years.

Experimental Investigations in Relation to Sugar Industry.—Research work in relation to the Sugar Industry has been continued during the year; the extensive series of experiments with varieties of cane have been continued on the eight experiment stations, while manurial experiments have been conducted at Reduit, Médine and on two estates. The principal points at present being investigated are:—the effects of cultivation, Phosphatic manures, Lime, Molasses and Nitrogen. It is hoped that the investigations now in progress may have become sufficiently advanced by the end of the current year, to enable the results of these to be put forward in the form of a report. Experiments on the bud selection of canes on the lines laid down by A. D. Shamel have been continued by the Botanist, and the Sugar Technologist, while the Chemical Division has in hand a number of investigations on soil problems, including the results of the work on the soil survey which had been suspended for some years on account of calls on the time of the Staff in other directions; experiments have also been commenced on the losses which take place in the production of Fumier (Cattle pen manure) under Mauritius conditions. The results of the preliminary investigations carried out by the Divisions of Sugar Technology and Chemistry in conjunction with the Authorities of the Bacteriological Laboratory on the pollution of rivers by effluence from Sugar factories were submitted with the report of the Commission on this matter to Government.

Investigations were continued by the Botanical Division into the various fungoid maladies of cane in Mauritius, while the measurements of the rate of growth of canes and of their transpiration coefficients were continued. The important series of investigations in progress at Médine on irrigation of cane has already been mentioned.

SUBSIDIARY AGRICULTURAL INDUSTRIES

An interesting feature of the Agricultural situation has been the tendency towards the revival of interest in the possibility of developing Agricultural industries subsidiary to the production of Sugar. It is practically certain that the future of Mauritius is bound up in that of the Sugar Industry, but at the same time the evolution of subsidiary industries of importance is extremely desirable. During the war and the period of high prices immediately succeeding it, it was almost impossible to arouse any serious attention in the development of alternative industries; this was perhaps but natural; at the present moment however there is a distinct tendency in the opposite direction and prospects for serious efforts to develop subsidiary cultures are brighter than they have been for some years.

Aloe Fibre.—From July 1923 the market for Mauritius Hemp has been on the upward trend and reached a maximum of £ 48 per ton for the prime grade in the month of November. Quotations subsequently fell somewhat but remained firm in the neighbourhood of £ 47. The exports for the past nine years have been as follows:—

1916	...	...	...	7,118	Bales
1917	...	...	...	5,647	"
1918	...	...	...	1,974	"
1919	...	...	...	10,139	"
1920	...	...	...	3,500	"
1921	...	...	...	1,150	"
1922	...	...	...	3,120	"
1923	...	...	...	2,400	"
1924	...	...	...	4,987	"

The standard system of baling at present in vogue in Mauritius gives 4 bales to the metric ton.

During the year there was a considerable revival of interest in the Fibre Industry; owing to the decline in the price of sugar several factories were re-opened which had not worked for many years, and in July a Committee was appointed by the Governor, with the Director of Agriculture as Chairman, to report on steps which might be taken to improve the position of the industry. The Committee has not yet presented its final report but in the meantime, as a result of the initiative taken, efforts are being made to organise a Fibre Growers Syndicate on similar lines to the Sugar Syndicate, with a view to the co-operative handling and marketing of the crop, in conjunction with which a project for the establishment of a central Brushing, Grading and Baling Factory is being considered. There is no question that the Industry would greatly benefit from the establishment of such an institution, inasmuch as standardised preparation and grading would improve the market conditions for the produce, while close baling by means of hydraulic presses would enable important savings to be effected on freight.

In relation to Sisal some progress has also to be reported. In July the Corona Fibre Factory was removed to Plaine Lauzun and set up in the Government Sisal Plantation at that point. A reaping of 18 acres was effected and the produce decorticated by the Corona machine and shipped to England. It is hoped that the Government plantation at this point may eventually become the nucleus of an area planted by private enterprise for manipulation by the factory. At Grand Bay the Robey decorticator imported by Mr. Gaston Tyack was operated during the year. At this point there are some 450 acres of Sisal. The plant includes a Robey decorticator with automatic brushing and hydraulic baling plant and has up to the present given satisfactory results.

So far there appears on the whole to be good grounds for the belief that the cultivation of Sisal in the Colony offers considerable opportunities for expansion.

Production of Alcohol.—The production of Alcohol for the past nine years according to Treasury returns is as follows:—

1915-16	... 1,091,485 Litres	1920-21	... 1,900,000 Litres
1916-17	... 1,883,607 "	1921-22	... 1,749,994 "
1917-18	... 1,602,414 "	1922-23	... 496,237 "
1918-19	... 1,529,315 "	1923-24	... 523,892 "
1919-20	... 1,666,000 "		

Practically all the Alcohol produced is consumed locally as Rum, but the operation of the Liquor Licencing Law, which has now been in force for two years has produced a pronounced effect on the consumption of Rum.

It is to be regretted that no further progress can be reported in relation to the power Alcohol plant at St. Antoine. Developments on these lines are so obviously indicated that it is to be hoped that further attention may be directed to possibilities in this direction.

Tobacco.—Efforts to develop the tobacco Industry have been continued under the auspices of Government during the year. While the Tobacco grown under tax is only slightly over 12 acres the acreage grown under the permit system is at present 188 acres.

Of all the alternative industries to Sugar, Tobacco presents to my mind the greatest degree of promise. Up to recently, attention has been concentrated on the production of the type of Black Tobacco produced by the carotting process from the Tabac Bleu variety, which is extensively grown in Réunion and imported into Mauritius. As the result of careful experimentation, tobacco of this class fully equal to Réunion tobacco is now being turned out at the Tobacco Factory. Unfortunately the sale and distribution of Réunion Tobacco is in the hands of local interests and attempts to substitute Mauritius tobacco for it have evoked much opposition. The situation is rendered more difficult owing to the fact that for this type of tobacco, there is practically no alternative market. Consequently attention has been turned to the possibilities of producing a Tobacco which would find a market not only for consumption locally but also for exportation. A considerable number of experiments have been carried out by the Department of Agriculture on new varieties of Tobacco with distinctly encouraging results and by the end of the year, Government approval had been obtained for the despatch to South Africa of Mr. G. Corbett, Agricultural Superintendent, Rodrigues, for the purpose of making enquiries concerning the cultivation and curing of tobacco in the Union of South Africa, Rhodesia and Nyasaland. The position was summarised in a memorandum presented to Government by the Director of Agriculture in November in which proposals were made for further development. If the proposals mature it is hoped that they may pave the way for considerable developments in the Tobacco Industry, not only in Mauritius but also in the Dependency of Rodrigues where the need for established industries is very great owing to the rapid increase of population.

Tea.—The local Tea Industry continued in a languishing condition; in spite of the protection of Rs. 0.60 per kilo, the local produce cannot compete with imported Teas from India and Ceylon. Statistics of production are as follows:—

1888-97	... ..	5,000	kilos per annum
1898-07	... ..	32,000	"
1900-10	... ..	35,000	"
1911-15	... ..	38,000	"
1916-17	... ..	30,000	"
1917-19	... ..	32,000	"
1919-21	.. ..	20,000	"
1922-24	... ..	25,000	"

The quantity imported yearly averages 180,000 kilos of which 160,000 come from Ceylon.

Up to the present no efforts have been made to develop an export trade in Tea popular opinion tending to the view that the crop will be unable to compete with Tea grown in other countries owing to a higher wages rates which at present prevail in the Colony.

Coconuts.—No great changes of importance occurred in this Industry, for which there is probably considerable scope for development. During the year 1924, 805 tons of Copra were imported from the Oil Islands (Dependencies of Mauritius) of which 746 tons were re-exported.

About 100 acres of Coconuts at Pointe aux Sables have now come into bearing as have also some small areas at Trou-aux-Biches, the nuts being consumed locally.

Some developments have taken place in the Southern part of Black River where plantations to the extent of about 50 acres have already been made and where further developments are in contemplation. It is anticipated that these areas may ultimately lead to the production of copra.

At present, Coconut growing is confined to the extreme littoral; it is believed however that apart from this, considerable areas of waste land exist, notably around Port Louis and in Black River which could quite well be developed in Coconuts; to test this point a small trial area has been established at Abercrombie and it is hoped to plant further trial areas elsewhere.

The crop appears to offer considerable possibilities inasmuch as it demands very little labour while the fears which are at times expressed regarding its liability to cyclone damage are probably exaggerated.

Vanilla.—The market for Vanilla firmed up considerably during the year, nevertheless, the industry did not show any particular development.

Food Crops.—While the cultivation of vegetables and Manioc is practically on the same level as in preceding years, the cultivation of Maize is still suffering from the competition of imported South African Maize. At the end of 1923 the total acreage under food crops was approximately 9,500 acres of which Manioc and Maize accounted for 2,000 and 2,500 acres respectively, and vegetables for 2,700 acres. But little change occurred in 1924; figures are not yet available but it is anticipated that the total area under food crops will evince a slight increase over the 1923 figures.

Live Stock.—The importation of cattle from Madagascar in 1924 numbered 12,873 head, a decrease of 603 on the corresponding figure for 1923. Of these animals 11,329 were imported for food and 1,544 for other purposes. The total value of the cattle imported this year is Rs. 707,875.—

The small local Stock Breeding Industry has continued to suffer vicissitudes mainly owing to the competition of Madagascar animals, which chiefly by reason of the low exchange for the Franc, have been currently sold at from Rs. 75 to Rs. 100 per head. Large numbers of draft animals of this type have been bought at these rates for cart and also to some extent for plough purposes; such animals are inferior both in size and resisting power to the bullocks raised by local breeders, but owing to various causes local breeders are unable to compete on these terms.

The question was considered during the year by the Local Stock Breeders Association and by the Board of Agriculture, and various proposals put forward for the assistance of the local Stock Breeding Industry; so far however without any tangible result. There is no doubt that owing to the abnormal situation in relation to exchange, the situation of the local Stock Breeding Industry has become very precarious, and this in time is bound to react adversely on the Agricultural Community when exchange reaches a more stable position. Meantime the considerable efforts made by breeders in the years immediately succeeding the war to improve their herds by means of the purchase and loan of animals of the Government Stock Farm are almost entirely discounted. The Government Stock Farm itself has again been run at a loss and at the sale of stock held in January 1924, receipts were very disappointing. The matter was considered by the Board of Agriculture during the year, which body advised that in view of the unstable economic situation and of the probability of the ultimate revival in breeding which will follow a restoration of more normal exchanges, the operation of the Farm should not be curtailed. This view has for the present been accepted.

Considerable interest has been manifested in Dairying, the erection of the new buildings at the Government Dairy at Curepipe especially representing an important advance. This Dairy has now been completed on modern lines; it comprises fifty cows, while the byres are provided with up to date fittings, including steel stalls for cows, stanchions & automatic water bowls; the handling of milk is carried out in accordance with the recommendation of the British Ministry of Health, the aim being the production of milk approximating to the grade A certified article.

The results in this direction have been most encouraging and demonstrate that the production of clean milk in Mauritius is well within the range of practical problems. Funds for the extension of the Dairy have been provided. The milk therefrom is supplied to the Civil Hospital, Port Louis and the Central Hospital, Candos. A small branch Dairy is also maintained in connection with the Government Farm at Reduit from which milk is supplied to the Moka Hospital, while the small dairy maintained by the Poor Law Department at Barkly Asylum continued to supply milk to the Lunatic Asylum and the Prisons. There are also a number of private Dairies now operating in the Colony, producing milk under improved conditions, and additions thereto are in contemplation. Advances in this direction mark a very welcome step towards the replacement in part of the abominably bad condition in relation to Milk supply through the agency of Indian cow keepers which exist throughout the Colony.

Animal Diseases.—There have been no outbreaks of animal disease of importance in the Colony during the year. In this connection interest centres particularly in the systematic campaign against Surra which has now been carried on since the end of 1922. The campaign has been rendered possible by the appointment of two whole time Stock Inspectors and by the utilisation of the part time service of two other Officers in the same connection. The plan of work adopted has been to divide the Island into sections, and the work over each section seriatim, examining large numbers of sample animals by means of blood smears regardless of whether they showed symptoms of disease or not. This course was decided upon as after long experience, it had become clear that the disease was maintained in the Island by means of carriers which showed no perceptible signs of the disease. So soon as a case is detected on cattle, quarantine is enforced with the help of the Police and the infected animal required to be treated within a delay of forty eight hours; if by the end of that time treatment has not commenced the animal is slaughtered

without compensation. For treatment, centres have been provided all over the Island with the co-operation of Estates and the Medical and Health Department; so soon as an animal is declared infected, the owner is notified of the nearest centre for treatment, and the treatment forwarded from the Veterinary Laboratory on payment of a fee of Rs. 12. The Soamin treatment has been remarkably effective in relation to Bovines, but is of little value in relation to Equines, consequently in the latter case compulsory slaughter is now required on notification.

The campaign is producing already striking results as the following data show:—

Year	Number of animals examined	No. of infected animals detected	Percentage of infected animals on total examined	
1922	... November	December only	51	...
1923	5,968	...	150	2.5%
1924	5,959	...	37	0.5%

At the end of 1921, the situation in relation to Surra looked extremely threatening; as the result of the campaign, which has revealed numerous cases acting as carriers which would otherwise not have been brought to light, the menace has been almost entirely mitigated, and the situation in relation to the disease is more favourable than at any time since it was first introduced. This is shown by the rapidly increasing number of horses and mules. There is no obvious reason in a limited area like Mauritius with a comparatively small livestock population, why this scourge which has been the cause of so much loss in the past should not, given a continuation of this policy, ultimately be eradicated.

Quarantine measures in relation to animals imported were maintained during the year; the establishment of the Animals Quarantine Station at Fort William has materially increased efficiency in this direction. The maintenance of rigid quarantine measures against animal importation is of considerable importance in view of the prevalence of dangerous stock diseases in India and South Africa and all importations of horned stock from these two places are now in addition to being provided with clear bills of health, required to undergo a period of six weeks quarantine "surveillance" before being released.

In relation to Rabies quarantine provisions were rendered more stringent during the year, and all dogs or cats imported into the Colony, following English practice, are now required to undergo six months quarantine, irrespective of whether they come from an area in which Rabies exists or not. The Colony has now been free of Rabies for 36 years and, in view of the existence of the disease in Madagascar, it is felt that no restrictions are too severe to insure against its reintroduction. In this connection, excellent quarantine kennels for dogs exist at Réduit. The Animal Diseases Prevention Ordinance was remodelled and codified during the year; the draft being ready for presentation to the Council of Government by the end of the year.

AGRICULTURAL EDUCATION

During the year the Mauritius Agricultural College continued its operations successfully; the buildings were practically completed by the end of December and arrangements made for the admission of new students. The details of the working of this institution are dealt with in a separate report. The completion of the organisation of this undertaking however marks a very important step towards the provision of systematised training for future planters and administrators, and affords definite provision in this respect which was previously largely lacking.

In relation to Agricultural instruction in Primary schools, the School Garden movement continued to make some headway, the total number of registered gardens being 18. The system of training Horticultural & Agricultural Apprentices carried on by the Agricultural and Forest Departments in co-operation was continued and extended during the year. No lectures were delivered to Elementary School Teachers and no arrangements have yet been concluded for the provision of definite agricultural training to students of the Teachers' Training College. In an Agricultural country such as Mauritius there is marked need for the further systematisation and extension of instruction in these directions and it is hoped that means may eventually be found for the linking together of the at present rather uncoordinated efforts into a compact well defined and coherent scheme of agricultural education for pupils of primary schools.

CO-OPERATIVE CREDIT SOCIETIES

Co-Operative Credit Societies continued to work under difficulties during the year and much trouble has been experienced owing to the excessive influx of capital into the Colony during the years 1919 and 1920, which led to an epidemic of reckless borrowing and lending which has had very unfortunate consequences. Signs are however not wanting that some improvement is taking place in this respect and it is hoped that with the return of more normal conditions, a healthier tone will, ere long supervene.

AGRICULTURAL SHOWS

Interest in Agricultural Shows was well maintained during the year, two shows organised by the Department of Agriculture one in the district of Flacq and one in Rodrigues took place, while the Société Horticole also organised a very successful Exhibition in October at Curepipe. The policy of holding small district Agricultural Shows is receiving considerable

support; these shows do good, inasmuch as they serve to bring to the front questions in relation to subsidiary industries and also afford a means of disseminating information respecting points of interest. A feature of the Flacq Show was a series of addresses on various topics delivered by Members of the Staff of the Department of Agriculture and by the Director of the Bacteriological Institute. Some discussion took place during the year with a view to the organisation of an exhibition on a larger scale to be held in Port Louis in 1925.

RODRIGUES

Efforts to develop the Agricultural possibilities of this Dependency were continued during the year. The Agricultural Station at Oyster Bay and the Stock Farm were improved and extended. Experiments were carried out with a view to introducing the cultivation of new crops and the improvement of existing crops and schemes considered for the improvement of the Cattle Walk and the assistance of Local Stock Breeders. Two Pedigree large black pigs were introduced while the experiment on the raising of donkeys is giving most promising results. A Co-Operative Credit Society was also inaugurated at Trèfles during the year. In view of the increase in population in the dependency, the chief need consists in the establishment of an agricultural industry which will furnish a staple exportable commodity; in this connection tobacco cultivation appears to hold out great promise; at the end of the year in view of possible developments there and also in Mauritius, the Agricultural Superintendent, was despatched on a mission to investigate and report on methods of tobacco cultivation and curing practised in the Transvaal, Rhodesia and Nyasaland.

PART II.

WORK OF THE DEPARTMENT OF AGRICULTURE DURING THE YEAR 1924.

Staff Changes.

Mr. D. d'Emmerez de Charmoy, Assistant Director went on sick leave in December. Mr. C. A. O'Connor acted as Assistant Director during Mr. d'Emmerez's leave and Mr. Edwards as Entomologist.

Mr. C. A. O'Connor, Agricultural Instructor was appointed Chief Agricultural Officer in July.

Mr. N. Craig, M.Sc., (Durham) was appointed Lecturer in Agricultural Chemistry in the College of Agriculture with charge of the Chemical Division of the Department of Agriculture. Mr. Craig assumed duty in August.

Mr. W. H. Edwards, D.I.C., returned from Study leave in England and South Africa in October and assumed duty as Lecturer in Entomology and Zoology in the College of Agriculture, attached to the Entomological Division.

Mr. Y. Lefebure, Stock Inspector proceeded to South Africa on one year's study leave in February.

Mr. A. S. Clegg, Agricultural Superintendent, relinquished his appointment in May and returned to England.

Mr. E. Lesur, Officer in charge Medine Irrigation Experiment Station, was appointed provisional Agricultural Superintendent from the date of Mr. Clegg's departure.

Mr. J. de Pitray was appointed Officer in charge of the Irrigation Experiment Station in May. He relinquished his post in December and was succeeded by Mr. E. Colin.

Mr. E. F. Shepherd, B.S.A., Botanist and Mycologist proceeded to Réunion in September on special mission to investigate Mosaic disease of cane in that Island.

Mr. G. Jollivet was appointed Officer in Charge of the Government Dairy, Curepipe in May.

Mr. F. Giraud, Assistant Chemist went on sick leave in December, Mr. R. Laval, Scientific Assistant acted as Assistant Chemist.

Mr. G. Corbett, Agricultural Superintendent, Rodrigues, left for South Africa on special mission to study Tobacco cultivation in December.

Mr. E. Cartier, Ag. Overseer of the Dairy was appointed Officer in charge of the Abercrombie Nursery in May.

Mr. M. Valaythen, Asst. Overseer Royal Botanical Gardens was appointed Overseer in charge Curepipe Gardens in June. Mr. H. Baichoo was appointed Assistant Overseer, Royal Botanical Gardens.

Miss U. Bouloux resigned her appointment as Lady Typist in July.

Messrs. F. Blackburn and S. Peerbaye were appointed provisional Sixth Class Clerks in August and September respectively.

Mr. A. Pakeeree, Assistant Inspector, C.C.S., was promoted to be 5th Class Clerk in the Post Office in September, he was succeeded by Mr. W. Bourdet seconded for duty from the post of Sixth Class Clerk.

The work of the Department again developed very considerably; during the year a number of new lines of work were undertaken, while existing operations extended suitably in a number of directions. The growth of the Department has been noteworthy of recent years and it is satisfactory to be able to record that the efforts made appear to be meeting with a measure of appreciation from the planting body. The operations of the divisions are reviewed in the following pages.

ENTOMOLOGICAL DIVISION

The Entomologist reports as follows :—

Campaign against Phytalus Smithi.—The results of the 1923–24 campaign were reviewed in a special report which was printed and distributed amongst those concerned. The number of beetles destroyed during the period was again slightly greater than in the preceding year, the capture showing an increase of 9 millions over that of the previous season.

Tiphia Parallela.—A series of experiments were carried out with a view to investigating the reasons for the scarcity of this parasite in certain parts of Pamplemousses. Although interesting data have been compiled, it is insufficient to lead to any definite conclusions as to the causes of the scarcity of this parasite at certain points in the infected area. These experiments will be continued next season.

At Joli Bois, *Tiphia* is steadily increasing and judging from the results of the campaign there are good reasons to believe that the wasp is pursuing its natural role.

Tiphias were distributed in the Moka district, at Circonstances and Beau Bois Sugar Estates where *Phytalus* was discovered. A good number were also liberated at Beau Séjour in Pamplemousses. Early in May, *Phytalus* larvae were detected in cane fields at Beau Bois and Circonstance in Moka.

The infected area was subsequently delimited and proclaimed in quarantine. The results of the campaign which immediately started will be embodied in the usual Departmental report on the Control of *Phytalus Smithi*.

Other Insect Pests.—Red Ants "*Solenopsis geminata*."—Experiment respecting the control of this pest were continued with the result that it was found possible to cope with the pest by the use of an insecticide :—Kerosene Creoline Emulsion—the formula of which has been published with full particulars in the *Revue Agricole*. The Commonest insect pests affecting garden and field crops have been noticed as usual. Information respecting their control were given to small planters. Sprayers and insecticides were supplied whenever judged necessary.

Publications

1. A bulletin was prepared by the Entomologist and Mr. A. Moutia, Scientific Assistant, on the Control of Insect Pests in Mauritius and is in the press.

2. Instructions for Laboratory Work in Zoology, Entomology, Botany and Mycology, by Mr. D. d'Emmerz de Charmoy, E. F. S. Shepherd, W. H. Edwards and A. Moutia were published.

3. A revised and much enlarged edition of Poultry Breeding in Mauritius has been prepared by the Entomologist and will soon be ready for publication.

Plant Inspection.—One hundred and thirty five separate inspections of consignments of plants, tubers and fruits were made at the Customs and Parcel Post Office; 291 cases of fruits, 132 bags of seeds, and 290 parcels of tubers and plants were examined.

Education.—Lectures on Entomology, Zoology and Animal Husbandry were delivered at the College of Agriculture by the Entomologist, the Scientific Assistant, and after his arrival by Mr. W. H. Edwards.

Researches on poultry diseases have been the object of special attention as in previous years. Leg weakness and Neurosis of Ducks and chickens were specially studied. It appears to be a physiological disease chiefly due to defective diet rather than to a specific micro-organism. Appropriate treatment has proved very effective.

CHEMICAL DIVISION

The Chemist reports as follows :—

The routine analyses carried out by the division were as follows :—

	Number	Estimations
Lines	36	39
Waters	28	121
Dipping solutions...	74	74
Phosphatic manures	16	20
Guano melange ...	40	200
Farmyard manure &c.,	27	75
Saltpetre	7	14
Sulphate of Ammonia	7	7
Miscellaneous ...	19	55
Canes and Cane juice	1146	2292
Soil moisture determinations..	2100	2100
Total ...	3500	4997

The first of a series of experiments designed to investigate the transformation of nitrogenous manures in Mauritius soils, was completed; a further series of confirmatory experiments on similar lines is now in progress. Further lines of research which have been started include the continuation of the survey of the cultivated soils of Mauritius.

Researches have also been planned to investigate the losses occurring in making Farmyard Manure and the soil point method for determining soil moisture. There has been a great increase in the number of estimations made in the Department Laboratories; unfortunately work was handicapped by the absence of Mr. Giraud, on sick leave for nearly five months.

Delay has also been caused by the reorganization of the Laboratories consequent on the organization of the Agricultural College, the Laboratory in which the Students of the Agricultural College formerly worked having been refitted as the main Chemical Laboratory of the Department.

Educational

Officers of the Division delivered five lectures a week at the Agricultural College, while in addition student Laboratory periods were supervised by one of the Chemists of the Division.

BOTANICAL DIVISION

The Botanist reports as follows:—

Investigations on the physiology of the sugar-cane.—The investigation in connection with the rates of growth of the sugar cane and the effects of environment were continued at Réduit, Pamplémousses and Médine. The investigation of the transpiration ratio of the sugar cane was continued.

Sugar Cane selection.—The progeny plots of R. P. 6 and White Tanna at Médine Experiment Station, planted with "tops" selected in 1923 were reaped. The general stand and the high yields showed promise. A number of the best stools were selected to provide "tops" for planting the second year's progeny plots, according to Shamel's method.

The canes in the progeny plots planted in 1923 at Highlands, Mon Désert and Rich Fund are making good growth, but have not yet been reaped.

Absorptive capacities of soils for water.—On account of the extreme variability in the absorptive capacities of different soils for water and the bearing this has on irrigation problems, a series of trials was conducted on the absorbing capacities of the soil of four fields at the Médine Irrigation Experiment Station. The method consists of running water out of a V-Notch at a constant head through a shallow trench in each field and collecting the water at the other end of the trench in a box of known volume the time taken to fill the box in each field being noted.

Investigations on plant diseases. Filao (*Casuarina equisetifolia*)—The so-called "Smut disease" with which is associated the fungus *Trichosporium vesiculosum*, has been less prevalent during the year under review than in 1923.

The experimental plots at Les Bouchons were inspected in April, and with the exception of one dying tree, which is not considered to have been the victim of the disease, the trees were found to be healthy.

Sugar Cane. (*Saccharum officinarum*)—Mosaic disease was discovered on January 22nd on some stools of the Coimbatore seedlings, Co. 232, Co. 213, and Co. 210, growing in the pépinière at the Central Experiment Station, Réduit. These stools originated from cuttings imported from India in 1923. All the infected canes were immediately uprooted and destroyed and since then, no further outbreaks of Sugar Cane Mosaic disease have been observed or reported in the Colony.

The Botanist and Mycologist spent the months of September and October in Réunion, investigating an alleged outbreak of Sugar Cane Mosaic disease in that Island. As a result it was shown that Mosaic existed on a considerable scale there. The results of the investigation formed the subject of a special report.

As a special precaution against introduction of sugar cane Mosaic into the Colony, it was advised that section 1 of Paragraph 2 of Proclamation 81 of 1913 issued under Ordinance 4 of 1910, Plant Diseases and Pests Regulations be amended. The amendment became law under Proclamation 20 of 1924 issued on May 24th, 1924.

A severe attack of "Smut" (*Ustilago sacchari*) was reported at Beau Vallon Estate (Mahebourg) and control measures advised. A plot of D.K. 74 canes at Médine Irrigation Experiment Station which was suffering badly from Smut attack at the end of 1923 threw off the effects of the disease after the arrival of the rainy season and yielded a normal crop. At the end of the year under review, a slight "Smut" infection existed on the ratoons in this plot, but the canes were receiving their normal supply of water, and were resisting the disease to a high degree.

Early stages of "Top Rot" were observed and the disease arrested at Palmyre Estate by a substantial increase in the rate of irrigation.

Sugar cane stools exhibiting typical root disease were collected at Médine, Réduit, Solitude, St. Martin, Beau Séjour and Britannia. At Médine, *Rhizoctonia* sp., was the only fungus found in association with the dying roots. At Solitude and St. Martin there were respectively undetermined basidiomycetous fungi, and at Réduit a basidiomycetous fungus and nematodes in association with the diseased roots.

At Solitude the disease was apparently aggravated by dry conditions and at Réduit by dryness and other unfavourable conditions. At Beau Séjour, the disease associated with which was found *Thielaviopsis paradoxa* and *Fusarium* sp., was secondary to attack of *Phytalus Smithi*, and at Britannia secondary to attack of *Oryctes tarandus* (the Gros moutou).

At Réduit, an experiment was started with a view to determining the effect of applications of Quicklime and molasses to cane stools suffering from root disease.

Gumming Disease.—Caused by "Bacterium vascularum" was often encountered but not in an epiphytotic form.

Thielaviopsis paradoxa.—The cause of the pineapple disease of cuttings was isolated from dying cane stems received from Beau Champ. The attack of the fungus was secondary to that of borers.

Melanconium sacchari.—Was isolated from the region of the nodes of the aerial portions and from the rhizomes of the same stalks.

Fataque (Panicum maximum).—A "Smut" was found widespread on this grass at Palmyre. Its identity was not determined.

Amongst other plant diseases examined, or reported, during the year are the following:—

On Tobacco (Nicotiana tabacum).—Mosaic disease—A powdery mildew, leaf spots, (one type of which was undoubtedly caused by *Cercospora nicotianae*) and "root knot" caused by *Heterodera radiculicola*, or other nematodes.

On Potato (Solanum tuberosum).—Blight, caused by *Phytophthora infestans*.

On Pumpkin (Cucurbita pepo).—Mosaic disease.

On Lucerne (Medicago sativa).—"Damping-off" of seedlings caused by *Phythium de Baryanum*.

On Pistache (Arachis hypogea).—Leaf spot caused by *Cercospora personata*. Wilt—caused by *Baccillus solanacearum*.

Pois Mascate (Mucuna utilis).—A reported root disease and blight of this crop at Highlands were found to be caused by attacks of the beetle—*Cratopus* sp. This was brought to the notice of the Entomologist.

Yam Plants (Dioscorea sp.).—At Réduit and Pamplémousses were blighted by a *Glocosporium*.

Peach (Prunus persica).—A serious attack of leaf rust (*Puccinia pruni-spinocae*) associated with a collar canker—in association with which was found a fungus apparently the imperfect stage of *Valsa lancostoma*, existed at Belle Vue, near Albion, on the west coast. Control measures recommended comprised spraying with Bordeaux mixture and excision of the cankers in their early stages of development.

Palm Trees (Oreodoxa regia).—At Pamplémousses were affected with a bud-rot apparently of bacterial origin.

On Rose bushes (Rosa sp.).—At Rose Hill a heavy infestation of a powdery mildew was reported, which disappeared on the approach of the rainy weather:

On Coffee (Coffea sp.).—Rust "*Hemileia vastatrix*" often in association with the *Anthracnoseae*, brown blight fungus—*Colletotrichum coffeanum*—was prevalent during the year. *Colletotrichum coffeanum* also damaged the fruits. During the year, arrangements were made with Mr. James Weir, Pathologist, Plant Diseases survey and Pathological collections, Bureau of Plant Industry, United States Department of Agriculture, whereby exchanges of pathological botanical specimens and specimens of tropical fungi would be conducted between his herbarium and that of the Department. Several Pathological specimens have been received from him and local material prepared for despatch in exchange.

Miscellaneous work included:—

- (a) Examination of samples of diatomaceous earths from Kenya.
- (b) Examination of a cotton sample from Rodrigues.
- (c) Germination tests on imported onion seed and Tobacco seed.
- (d) Inspection of School Gardens with the Chief Agricultural Officer.
- (e) Examination of a sample of grain from Beau Champ to determine the presence or otherwise of poisonous weed seeds or the presence or otherwise of poisonous matter in other forms.
- (f) Contribution of articles to the "Revue Agricole" de l'Île Maurice.

Work at the College of Agriculture.—During the year, the Botanist and Mycologist delivered 38 lectures and supervised 37 laboratory periods in the College of Agriculture.

VETERINARY DIVISION

The Government Veterinary Surgeon reports as follows:—

Importations of animals.—During the year 64 schooners and steamers have been inspected re: importation of animals in the Colony; the following tables give the number of animals imported:—

<i>Imports of live animals (1924)</i>				
Madagascar Bullocks	...	...	...	12,873
Cows and Bulls	...	...	...	320
Pigs	...	...	...	1,164
Sheep	...	...	...	799
Goats	...	...	...	3,122
Horses	...	...	...	87
Poneys	...	...	...	159
Mules & Asses	...	...	...	30
Dogs	...	...	...	2

Stock Farm.—Animals of the Department have been treated for :—One bull for abscess, one cow died of congestion of the lungs, another died of Pericarditis, four calves died of enteritis and gastro enteritis ; six animals died with symptoms of Arsenic poisoning although all efforts have been made to treat these animals.

Police Department.—Animals of the Police Department have been treated for the following :—1 horse for limping, 1 mare for pneumonia, one horse for " frog rot," one horse for Keratitis, one mule, limping, one horse for wounds and one for colics.

Medical and Health Department.—One mule was treated for an abscess of the hoof, 1 mule for limping ; 1 mule was condemned on account of old age ; one bullock was treated for wounds and one for an abscess at Roche Bois. At Curepipe Sanitation 2 bullocks died of Surra, and one as the result of broken shoulder due to an accident. Three were treated for swelling of the neck and withers. One died of Colics, two others were condemned for chronic laminitis.

Woods and Forests.—One donkey was treated for limping, one bullock at Chateau d'eau for abscess of the sinus and one donkey for limping.

Curepipe Dairy.—Two cows were treated for abscesses, one for hemorrhage of the udder, 2 for pneumonia, one bullock for wounds and one calf for Colics.

Immigration.—One donkey was treated for accidental wounds.

Animal Quarantine Station

The following animals have been quarantined at Fort William Quarantine Station before admittance in the Colony :

Cows	...	...	20
Pigs	...	...	2
Donkeys	...	...	4

The number of dogs under observation in the Government Quarantine Kennel during the year was 7.

Meat Inspection

Slaughter houses of the Colony were regularly inspected. In two cases seizures were maintained and in one case of illegal slaughtering the meat was seized and forwarded to the Orphanage and the owner of the animal prosecuted. Four farrow heifers and three cows (troupeau de souche) under age were allowed to be slaughtered during the year. Demonstrations were delivered to the Sanitary Staff, on meat inspection at Rose Hill abattoir. The lectures were well attended and proved successful.

Contagious Diseases

Surra.—The systematic examination of animals which has already given good results continued during the year. The principal Stock Inspector was absent on Study leave, but the survey was continued by the Assistant Stock Inspector and during short periods by the 2 Officers in charge of Beetles campaigns ; 5,959 blood smears were taken and examined with the result that 27 cases were detected. Six equines were slaughtered for Surra. Mention should be made of the valuable assistance of the Police Department in relation to the enforcement of the quarantine of the affected animals. The work of the Assistant Stock Inspector was very regular and effective ; during several months this Officer carried on single handed the Surra survey very satisfactorily.

Epizootic Lymphangitis.—One case of this disease was detected during the year on a mare. The animal which was incurable, was destroyed.

Red Water.—One sub acute case of Red Water was recorded and although " Trypanbleu " was immediately injected the affected cow died the next day. No other outbreak of this disease was detected or reported during the year.

Report of Deaths to the Department

During 1924, eleven mortalities were reported to the Department, amongst which five occurred in Flacq. A Survey was immediately made in that vicinity and 8 cases of Surra detected in the neighbourhood on animals belonging to carriers. The affected animals were placed under quarantine and treated, immediately. The action taken in this circumstance has certainly located an outbreak of Surra which might otherwise have spread all through this district.

STATISTICAL DIVISION

The Statistician reports as follows :—

The Blue Book Statistics relative to Agriculture were supplied to Government. Statistical data were also supplied to the International Institute of Agriculture, Rome ; to the Board of Trade, to the Colonial Secretary's Office, the Immigration Department &c. Monthly reports on weather and crop conditions were issued ; the usual crop forecasts were prepared and submitted to Government.

The Meteorological service of the Department was continued under the general supervision of the Statistician and results of the observations were reduced and tabulated by him. Observations of temperature, relative humidity and rainfall are taken at the Central Experiment Station, Reduit and at five secondary stations, viz: the Royal Botanical Gardens, Pamplémousses; the Nursery Garden, Curepipe; Abercrombie Nursery, Port Louis; Mahebourg Demonstration plot, Grand Port and Médine Irrigation Experiment Station, Black River; in addition, most Sugar Estates voluntarily contribute rainfall observations. These data are reduced and co-ordinated to assist in the work of crop forecasting and for general investigations on Agricultural problems connected with climatological factors.

The Statistician also acts as Registrar to the Mauritius Agricultural College, and Lecturer in Physics & Applied Mathematics in the same institution. He is Secretary to the Advisory Board of the College and to the Board of Agriculture.

SUGAR TECHNOLOGICAL DIVISION

The Sugar Technologist reports as follows:—

Pollution of Rivers by Factory waste waters.—The study of the causes of river pollution by factory waters started last year in co-operation with the Director of the Bacteriological Laboratory, has been completed and report submitted.

Cane Selection.—The improvement of the sugar cane following Shamel's bud selection method is giving promising results. The progeny plots at Highlands and Mont Desert were not harvested this year, the canes having not reached their full development. Some of the plots show superior progenies. The Médine plots were harvested under the control of this Division only, during the absence of the Botanist from the Colony. The 13 best White Tanna stools and the 6 best stools of R. P. 6 were selected and planted in the second year progeny plots. All the cuttings had three nodes but only one bud was left on each, the two others were cut out. This method seems better than that of planting every individual bud, and is recommended by Mr. Shamel.

A mass selection of the White Tanna has been carried out at Rich Fund and a progeny plot planted.

Visits to Factories and investigations on Estates.—31 factories were visited before and during the crop, several of them repeatedly and on special request and advice were given in compliance with the request of the Managers and Factory Managers.

The influence of the application of Phosphoric acid, and of heat singly or jointly, to the clairce has been investigated and a great number of samples from Britannia, Mon Desert, Riche-en-Eau and Savannah have been examined. As a preliminary conclusion it may be stated that in factory conditions, the influence of temperature seems more liable to cause inversion than that of active acidity (pH) all other things being equal. This question is rather a delicate and important one, and will need a good deal of supplementary work, for every year the number of factories aiming at the production of a better grade of plantation white sugar, is increasing.

Mr. R. G. W. Farnell, Chemist to the British Empire Sugar Research Association, recently visited the Colouy. During his stay in the Island he was in constant contact with this division. He accompanied the Technologist on many of the latter's visits to the factories. Interesting and valuable observations were made. Mr. Farnell developed and generalized the application of the determination of the Hydrogen Ion concentration in the Factory, which had been started on a restricted scale the previous year and before his arrival this year, by the Technologist.

Research work on the Colloids of Sugar Cane started by Mr. Farnell was continued and will be pushed forward actively in the course of next years.

Controle Mutuel.—The "Controle Mutuel" was successfully carried out, 35 usines having contributed fortnightly during the crop, while returns were regularly distributed amongst the contributors.

Educational.—Complete courses of 40 lectures in Sugar Technology and 10 lectures on Sugar Cane cultivation were delivered this year to the third year students and to Sugar Estate Managers, Chemists and Employés from January to June. Regular weekly lectures in Sugar House Chemistry and Chemical control have been delivered to the second year students during the whole year. Practical demonstrations were given in the Laboratory and at Mon Désert Factory.

Practical Laboratory work was performed by Students after the lectures under the supervision of the Technologist. The second and third year students visited in detail several factories during the off season and the workshops of Tardieu & Co., and Les Forges et Fonderies de Maurice, with the Technologist.

AGRICULTURAL AND EXPERIMENT STATION DIVISION.

The following notes are taken from the reports of the Chief Agricultural Officer and the Agricultural Superintendent.

Food Settlements.—About the same area as last year was cultivated at St. Martin, St. Thomas and La Ferme Food Settlements. The number of resident settlers has increased, some of them have erected permanent buildings to replace temporary grass sheds.

Maize and Manioc were the principal crops grown, a smaller area is devoted to the cultivation of sweet potatoes, tobacco, tomatoes and other vegetables. Complaints were often received about damages to plantations by stray cattle. Seventeen oxen were impounded, two pigs and 3 goats were shot.

In order to encourage emulation among the settlers, money prizes were again awarded to the owners of the three best kept plots, both at St. Martin and La Ferme. The following are the names of the prize winners :

<i>At St. Martin</i>		<i>At La Ferme</i>	
A. Coomarasamy...	1st prize of Rs. 30	S. Bhageerat	...1st prize of Rs. 30
K. Carpen	...2nd " 25	M. Moonien	...2nd " 25
A. Laurent	...3rd " 10	T. Deehal	...3rd " 10

Demonstration plots at St. Martin and at La Ferme were maintained in good order.

The Co-operative Credit Society worked in connection with these Food Settlements was of great assistance to the small planters. Loans amounting to a total of R. 2,555.—were made, they were punctually repaid when due.

Maize Secherie.—The Maize Secherie was not operated during the year, owing to the importation of Maize from Madagascar and South Africa. Its transfer to Rodrigues where it would be more useful is under consideration.

School Gardens.—Great attention was devoted to School Gardens. Regular visits were paid to them by the Chief Agricultural Officer and his Assistant. A supply of seeds and plants was maintained throughout the year. One garden at Moka was closed as the Head Teacher did not take any interest in it. Applications for registrations of gardens were approved for the "Old Grand Port" R. C. Aided School and the "Brisée Verdrière" C of E. Aided School. There are now 18 school gardens in the Colony. Money prizes were awarded to the best kept, as follows, in May 1924, the gardens being judged by the Chief Agricultural Officer and the Botanist:—

1st prize of Rs. 50	to Highlands Road School
2nd " 40	to Plaisance Orphanage
3rd " 35	to Rivière des Anguilles
4th " 30	to Souillac
5th " 25	to Quatre Bornes
6th " 20	to Palma

Creditable exhibits from several school gardens were sent to the Flacq Agricultural and Curepipe Horticultural Shows.

Tobacco Cultivation.—The issue of permits to cultivate tobacco without payment of tax was resumed on a limited scale during the year. Seed of the Blue Tobacco were distributed free to Growers while visits were also regularly paid to Growers' plantations by Officers in order to give necessary advice.

Tobacco Factory.—The operations of the Tobacco Factory were extended this year. Machine-made "Dodo" cigarettes of Mauritius Tobacco were for the first time successfully placed on the market; a total of 4,271 tins being sold during the year. The Factory worked satisfactorily during the year. The following is a summary of operations:—

Dried leaves received by the Factory	...	.. 7,194	Kilos
Carottes made	... ..	... 1,199	"
Number of recarottings made during the year	...	... 8,606	"
" carottes worked	... ..	... 1,222	"
Raw Tobacco obtained	... ..	... 5,893.9	"
Sifted dry tobacco obtained	... ..	... 2,829.5	"
Dust and butts	... ..	... 1,193.5	"
Sifted tobacco % raw tobacco (Average)	... ..	... 48.	
Tobacco delivered for sale	... ..	... 2,220.5	Kilos

Government Dairy.—The new Dairy Buildings were completed this year; the Byré comprises accomodation for 52 cows and is fitted with the latest and most modern improvements, while attached to it are the milk room and feed room. Separate buildings were also erected for calves, isolation stable, bull stable etc. The milk from the Dairy has been supplied daily to the Civil and Victoria Hospitals; 26,618 litres to the former and 17,272 to the latter.

Three cows and three calves died during the year; 26 calves were born of which 14 were bulls and 12 heifers. In the annexed table is given a record of the yield of milk obtained from 39 cows.

Plots of Kikuyu, Sweet Potatoes etc., were planted for feeding the animals. It is intended considerably to extend plantations of Kikuyu grass; this fodder does fairly well at Curepipe and is superior to the local grasses.

Royal Botanical Gardens, Pamplémousses—Economic Selection.—This garden was kept in good condition. Beds were replanted, all lawns regularly mown and swept, lakes, avenues and paths cleaned, hedges trimmed, kiosks repaired etc.

Plants and seeds were sent in exchange to Botanical gardens in other countries. Supplies of plants and seeds were made to Abercrombie Nursery. Many persons visited the Gardens during the year. The compilation of a list of plants growing in the gardens for inclusion in an illustrated handbook of the gardens was completed during the year.

Curepipe Gardens.—Great improvements were made at Curepipe gardens. A number of unsightly trees growing in different parts of the gardens were removed. A new section in the vicinity of the Office was cleared levelled and turfed; 14 beds were made and planted with a collection of roses and other ornamental plants; 12 new varieties of ferns were received from South Africa; the principal roads and paths were macadamised. The Educational section was also maintained in good condition.

Abercrombie Nursery.—The following improvements have been carried out in this Nursery, viz:— A new potting shed and Toolstore were erected; the Plant shed was repaired and painted; the old Iron shelves were removed and replaced by stone ones; the fence around the Nursery was also renewed.

Sales of plants have increased. Arrangements have been made to raise a large quantity of fruit trees which are in great demand by the public. A consignment of twelve new varieties of Oranges and Mandarin plants were received in good condition from South Africa.

They will be propagated as soon as possible. Below is a list of the plants sold in 1924. The number of plants distributed amounted to 3,554.

Abercrombie Nursery

List of plants sold during the year 1924 :

Allspice	10	Mandarine	167
Caripoullay... ..	20	Mango grafts Alphonse	4
Cinnamon	9	" Aristide...	50
Clove	1	" Auguste...	28
Coffea liberica	152	" Baissac ...	21
" robusta	303	" Elise ...	1
" excelsa	10	" Goal'Etang	14
Cola	4	" Jose ...	25
Nutmeg	14	" Luciana...	4
Tobacco Seeds	15 grms.	" Miel ...	14
Mahogany	30	" Roopy ...	3
Dillenia indica (Chalta)	1	" Rosat ...	13
Anona sp.	4	Mango seedlings Maison	
Atemoya	12	Rouge	39
Avocado	18	Mango seedlings Torse	48
Badamier	22	Mangoustan (False)	
Bergamotte... ..	26	Garcinia sp. ...	2
Bibasse	122	Orange budded, Jaffa...	7
Bigarade	35	" Joppa..	2
Bread Fruit... ..	6	" Magnum	
Bull heart	56	" Bonum	1
Carambole	2	" Michel	
Eugenia sp... ..	8	" (Gros)	5
Citron	106	" Natal...	5
Coconuts local	125	" Navel..	12
" Ceylon	2	" Persan	
" Pemba	3	" brown	3
Eleocarpus	13	" Ruby	
Gooseberry (Ceylon)... ..	4	" blood	16
Grape fruit seedlings...	9	" Victoria	2
" budded	14	" Wittaker	1
Guava chinese	17	Orange seedlings	53
" local... ..	18	Pappaw	1
Hog Plum	59	Passiflora lauriflora	2
Jack fruit	12	Peach	13
Jambosse	25	Pomegranate	32
Jujube (Ziziphus)	1	Flacourtia	14
Lemon Genoa budded...	3	Sandoriam indicum	1
" layers... ..	3	Sour sop	46
" Seedlings	665	Sweet sop	466
Letchi layers	113	Antigonon	2
Mabolo (Diospyros)	3	Aristolochia	2

List of plants sold during the year 1924—(Continued)

Bignonia creeper (Liane aurore)	4	Palms, Hyophorbe amaricaulis	42
Bougainvillea	115	„ Hyophorbe verschaffeltia	4
Canna	6	„ Kntia sp. ...	1
Cassia aurea	3	„ Latania ...	2
„ fistula	11	„ Martinegia caryotifolia...	24
„ Javanica	29	„ Oreodoxa regia (Cayenne palm)	8
Croton	4	Panæ	2
Flamboyant	12	Pandanus	2
Gliricidia	9	Russelia junicea ...	19
Jacaranda	7	Sajo (Cycas) ...	3
Lagerstroemia	44		
Oleander	8		
Palms, Chrysalidocarpus	16		

N. B.—Are not included, plants supplied to Government Departments.

Le Réduit Grounds.—The Grounds were kept in good order. The collection of ornamentals was increased by the addition of a large number of new varieties of Cactus Dahlia. Vegetables were supplied to Government House throughout the year.

The following number of trees were planted in different parts of the domain, viz:—

20,206	Eucalyptus rostrata.
4,125	Pinus sinensis.
250	Araucaria Cuninghamii
1,520	Bassia latifolia.
1,610	Juniperus Bedfordiana.
400	Michelia Champaca.
100	Cinnamomum camphora
160	Terminalia Benjoin
1,000	Casuarina equisetifolia.

TOTAL ... 29,371

84.52 acres of forest plantations were weeded and 12.76 of new land cleared. The following plants were also planted on existing plantations to replace vacancies:—

1,950	Terminalia arjuna
3,400	Eucalyptus rostrata
300	Cinnamomum camphora
1,799	Pinus sinensis

TOTAL ... 7,449

Flacq Agricultural Show.—A very successful Agricultural Show was held at Flacq on the 27th July in the buildings of the District Court, the Market and its vicinity, great interest being manifested by the Planters and inhabitants of the District.

Co-operative Credit Societies.—The work of the Co-operative Credit Societies is reviewed by the Registrar in a separate Annual Report.

Experiment Stations at Réduit and Pamplémousses.

Cane Experiments.—The experiments with sugar canes have been continued as in previous years at Réduit, Pamplémousses, Labourdonnais, Long Mountain, Highlands, Britannia and Queen Victoria. From each of these stations canes have been reaped and weighed experimentally and samples of each variety sent to Réduit for crushing and analysis.

New plots of experiments on cane varieties have been established during the year at Réduit, Pamplémousses, Britannia, Highlands and Queen Victoria. Experiments with ploughing, molasses, Sulphate of Ammonia, Guano Phosphaté and Nitrate of Potash were continued at Réduit, Britannia and Hermitage. A certain amount of canes as well as cuttings of variety canes have been sold to planters.

From the seedling canes raised at Pamplémousses during the year 1923 and which were planted in one hole trials, 150 were selected and planted into 6 holes. From the 6 holes trials of 1922 seedlings raised at Pamplémousses 35 were selected and planted into 30 holes; 1798 seedling canes of 1924 were planted in 1 hole trials. The total number of samples of canes crushed in the Experimental Mill at Réduit was 1146, in each case the juice was weighed and sent to the Chemical Division for analysis. The canes reaped at the Central Experiment Station weighing 102.560 tons were sent to Trianon Estate.

Canes reaped at Pamplémousses weighing 54.050 tons were sent to the Mount Estate, and canes reaped at Montagne Longue weighing 4.250 tons sent to Mr. P. Ramphul.

Experiments with other economic crops.—Experiments with the following food crops have been continued during the year at Réduit and Pamplémousses.

RÉDUIT

Maize—breeding by selection trials		
Sweet Potatoes—trials with 48 varieties		
Eddoes and Tannias	8	”
Yams	12	”
Ground nuts	8	”
Oats and Vetches	2	”

PAMPLEMOUSSES

Sweet Potatoes—Trials with 48 varieties		
Eddoes and Tannias	6	”
Yams	12	”
Ground nuts	8	”
Tobacco	4	”
Manioc	30	”

A large amount of tubers, vines and cuttings have been distributed among the public. All the Tobacco grown on the Experiment Station was sent to the Government Tobacco Factory.

Seeds of 3 new varieties of Tobacco viz :—Cuban, Connecticut and Zimmer received in 1923 from the Imperial Institute were sown at Pamplémousses at the end of the year (1923) and have given good results. The leaves were reaped experimentally and the results recorded.

An experiment with the following green fodder was established at Réduit and reaped experimentally throughout the year :—

- 1—*Penisetum clandestinum* (Kikuyu)
- 2—*Dactylis glomerata* (Cocksfoot grass)
- 3—*Panicum* sps. (Buffel grass)
- 4—*Penisetum purpureum* (Elephant Grass)
- 5—Purple top.
- 6—*Panicum maximum* (Fataque)
- 7—*Stenotaphrum complanatum* (Herbe bourrique)
- 8—*Medicago sativa* (Lucerne)
- 9—*Paspalum dilatatum*.

Stock Farm.—Fair progress has again been made. The following are the births recorded :—

- | | |
|---|---|
| 1 | Hissar bull calf, |
| 1 | Ongole heifer calf, |
| 1 | Mysore heifer calf, |
| 2 | Sindhi bull calves, |
| 1 | Half breed Sindhi and Jersey bull calf, |
| 1 | Holstein Friesland Heifer calf, |
| 1 | ” ” Bull calf. |

TOTAL... 8

Eleven deaths were recorded. The deaths are as follows :—

- | | |
|---|---|
| 1 | Africander cow died of congestion of the lungs |
| 1 | Sindhi cow died of Pericarditis |
| 1 | $\frac{1}{2}$ breed bull Holstein Friesland died of enteritis |
| 1 | Sindhi bull calf died of Diarrhoea |
| 1 | Sindhi bull calf died of gastro enteritis. |

5

The deaths of 1 halfbreed Sindhi and Jersey bull calf

- | | |
|---|----------------------------------|
| 1 | Hissar cow, |
| 2 | Holstein Friesland heifer calves |
| 1 | Holstein Friesland bull calf |
| 1 | Jersey cow |

are obscure, but it is suspected, may have been due to malicious poisoning.

On the fourteenth day of February a Stock sale took place at which the animals were sold producing a total of Rs. 2,562. While two young heifers were received from the Dairy, 2 Sindhi Bulls and 1 cow were also sent to Rodrigues; 6,249 litres of milk were supplied to Moka Hospital from 1st January to 31st December.

The following bulls were sent on Estates for services during the year :—

- | | | | | | | |
|-------------|----|----------------------|------|------|---------|------------|
| Hissar bull | to | Palmar Estate | from | May | to | September. |
| Sindhi | ” | Bel Ombre Estate | ” | ” | ” | ” |
| Mysore | ” | Les Salines B. River | ” | ” | ” | ” |
| Ongole | ” | Pailles (A. Lagesse) | May | to | August. | |
| Afrikander | ” | La Caroline Estate | from | June | to | September. |

The following bull services were recorded at the Stock Farm. This does not include services on Estates :—

Pure breed Friesland bull, Elsenburg, B. Brommel	...	14 services
„ Ongole „ Hathi II ...	...	2 „
„ Hissar „ Amir II ...	...	2 „
„ Mysore „ Nizam II...	...	1 „
„ Sindhi „ Shahbundhur	...	2 „
		—
		21 services

Further successful experiments on the making of ensilage were again carried out during the year; 4 acres of new pasture were completed during the year and planted with Kikuyu grass; experiments with tarred floor for cattle shed have also been carried out.

The poultry runs were reconstituted and a rabbitry added to the Farm during the year. Consignments of 27 birds of 6 different breeds and rabbits of the Flemish Giant and Belgian hare breeds were imported from South Africa. Eggs and rabbits were sold to the public.

Buildings and roads.—All buildings belonging to the Department are in good condition. The Director's quarters were repaired and repainted and an installation of septic tank was made. The main road through the Station was remetalled.

Medine Irrigation Experiment Station.—The irrigation investigations were continued for the 3rd year at Medine, the fields were reaped experimentally and samples sent to the Central Experimental Station for crushing and analysis.

It has been found that there is a minimum amount of water which can be supplied to each field. This minimum is a function of the soil; that there is no advantage in applying water over and above the minimum quantity which a field can take. The best results are obtained by giving the minimum quantity of water at weekly intervals throughout growth; forking the canes in the interlines has increased the yields, while in virgins, raking the land after watering is advantageous.

The yield of the Experiment Station was very satisfactory, and 324.760 tons of canes were sent to Médine Factory.

Sisal plantations and Fibre Factory.—In January it was decided to transfer the Corona Fibre Factory from Médine to Plaine Lauzun, certain existing buildings in the middle of the plantation of Sisal being utilised to house it; the erection of the machine was completed in July, the operations of cleaning Fibre commenced on the 7th of August and terminated on September 3rd. During this period leaves from 18.81 acres of sisal were decorticated. The actual total weight of leaves obtained was 206.6 tons or 11.0 tons per acre.

The total weight of wet fibre was 12.690 tons equal to 4.640 tons of dry fibre i.e., a percentage yield of 2.24%, a very low figure.

The machine worked very well on the whole.

The produce contained in 20 bales was shipped on 19.11.24 by S.S. "Gaika."

The plantation of Sisal at Plaine Lauzun was kept in good condition, the grass in the interlines was cut and converted into hay for use as fodder and litter at the Dairy.

The plantation supplied once more after the reaping had been completed; new reaping will probably be made in May or June next.

BOARD OF AGRICULTURE

The Board of Agriculture established under Ordinance 30 of 1912 consists of:—

His Excellency, the Governor, President.

The Director of Agriculture, Vice-President.

The following members were appointed for 1924 :—

Honourable G. Antelme,	Messrs. M. Lagesse,
„ J. A. Duclos, C.M.G.,	„ F. N. Langlois,
„ M. Martin,	„ F. A. Nichols,
„ L. Noel,	„ G. Regnard,
„ M. d'Unienville,	„ E. Rouillard,
Messrs. G. Clarenc,	„ J. de Spéville,
„ H. G. Ducray,	„ J. J. Gibson,
„ L. H. de Froberville,	Pundit Boleram Mookteram.
„ A. Hugnin,	

In 1924 there were 4 meetings of the Board held on June 6th, August 6th, December 19th and December 31st respectively. At the first of these meetings which took place on June 6th, the following papers were laid before the Board :—

Bulletin No. 28 General Series,

„ No. 29 General Series,

„ No. 9 Scientific Series,

Report on Phytalus Destruction 1922-23.

Factory figures, crop 1923-24.

Preliminary forecast, crop 1924-25.

and the following questions were discussed :—

1. Tobacco Industry.
2. Quarantine for dogs,
3. Truss wheels,
4. Agricultural Show.

Meeting of August 6th.—The following questions were discussed by the Board :—

1. Proposed visit of Mycologist to Reunion in connection with Mosaic Disease.
2. Draft of new Animal Prevention Ordinance.
3. Report on Flacq Agricultural Show.
4. Results of experiments with Sugar Cane.

Meeting of December 19th.—The following papers were laid before the Board :—

- Annual Report of the Department of Agriculture for 1923.
- Report on Co-Operative Credit Societies for 1923-24.
- Prospectus and Syllabus of the Mauritius Agricultural College for 1924-25.
- Final crop forecast for 1924-25.

and the following questions were discussed :—

1. Report on Phytalus Campaign 1923-24.
2. Botanist report on Mosaic Disease in Reunion.

Meeting of December 31st.—The following questions were discussed by the Board :—

1. New Insecticide to be tried against Phytalus Smithi.
2. Mosaic Disease.
3. Projected experiments with storage of fumier.

PUBLICATIONS

The following reports and memoranda were prepared and submitted to the Council of Government and to the Board of Agriculture :—

- Report on Co-operative Credit Societies 1923-24.
- Report on operations against Phytalus Smithi 1923-24.
- Preliminary forecast of the 1924-25 Sugar Crop.
- Final forecast of the 1924-25 Sugar Crop.

LEGISLATION

The following Ordinances, Proclamations and Notification relative to Agriculture were issued during the year :—

- Ordinance No. 6 of 1924 to extend to Rodrigues Ordinance No. 4 of 1913 and rules made thereunder.
- Ordinance No. 11 of 1924 to amend the Labour Ordinance of 1922.
- Ordinance No. 23 of 1924 to amend the Animal Diseases Ordinance, 1915.
- Proclamation No. 20 of 1924 to amend Proclamation No. 81 of 1913. Importation of Plants.
- Government Notification No. 206 of 11.8.24 re. Regulations amending Registration of Agricultural Chemists.

EXPENDITURE AND RECEIPTS

The Expenditure of the Department has been as follows :—

	Rs.	c.
Personal Emoluments	79,708.38	
Maintenance of Gardens	16,077.22	
General Services	2,224.35	
Prevention of Plant Pests and Diseases	2,939.37	
Prevention of Animal Diseases	3,762.48	
Upkeep of Stock	9,633.69	
Establishment of Demonstration plots	1,274.97	
Subvention to Société Horticole	1,000.00	
Travelling Expenses	9,658.93	
Miscellaneous expenses Co-Operative Credit Societies	60.50	
Maintenance of Food Plantations	2,527.14	
Maintenance of Experiment Stations	13,877.55	
Minor Industries	31,160.95	
Apparatus and Chemicals	6,529.80	
Nursery for economic plants	2,101.41	
Registration of Chemists Examination	47.10	
Destruction of Phytalus Smithi	41,961.91	
Experimental Station for Irrigation of canes	12,302.26	
Upkeep of plantation at Floréal	469.63	
Dairy { Capital Expenditure	26,955.52	
{ Upkeep Expenses...	21,833.29	
Agricultural Shows	586.94	
Repairs to roads C.E.S.	499.00	
Importation of cattle	1,913.37	
Extra pasturage for Stock Farm	596.50	
Duplicator	425.11	
Importation of Poultry	1,568.74	
Services rendered by the Railways	16,840.35	
Purchase of raw Tobacco	6,617.24	
Total	315,153.70	

The receipts were —	Rs.	c.
Sale of flowers and plants	3,587.11	
Sale of Stock	2,585.34	
Services of animals	53.00	
Sale of eggs and poultry	487.51	
Sale of milk, Cattle Station	2,563.70	
Sale of canes	12,580.79	
Analytical fees	576.50	
Miscellaneous	610.05	
Rent of Tea Plantation	1,155.00	
Sale of Tobacco	16,834.85	
Contribution C.C.S.	2,354.00	
Veterinary fees (Customs)	1,568.00	
Destruction of Phytalus Smithi (Customs)	36,548.45	
Loans repaid by Co-Operative Credit Societies	4,585.00	
Interest on loans	719.76	
Rent of Crown Lands at La Ferme and St. Martin	332.00	
Sale of produce, Experimental Dairy	18,451.60	
Total ...	<u>105,592.66</u>	

GENERAL

The Director of Agriculture continued to serve as a nominated Member of the Council of Government. He also served as a member of the Royal Committee, of the River Pollution Commission and of Forest Board. He acted as Chairman of the local Sub-Committee for the British Empire Exhibition, of the Agricultural College Board and of the special Committee to report on the Fibre Industry. The Assistant Director continued to serve as a member of the Board and Treasurer of the Mauritius Institute.

The Director of Agriculture was called on to report on the fitness of the Royal College and Agricultural College Buildings for holding degree examinations in Science of London University. The Director of Agriculture and the Botanist were appointed to supervise the holding of the London University Intermediate Arts and Science Examination in July.

Examination for the Registration of Agricultural Chemists were held in July; the examiners being the Director of Agriculture and Messrs. R. E. Vaughan, B.Sc., A.I.C., L. Giraud and J. Manès. Three candidates presented themselves of which all passed.

April 20th, 1924.

H. TEMPANY,
Director of Agriculture.

COLONY OF MAURITIUS

REPORT

ON THE

IMMIGRATION DEPARTMENT FOR 1925

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Immigration Office,
13th July 1926.

THE HONOURABLE THE COLONIAL SECRETARY,

I have the honour to submit, for the information of His Excellency the Governor, the following report on the Immigration Department for the year 1925.

I.—Arrivals

The number of Indian Passengers arriving at Mauritius from India during the year 1925 was:—

Males	Females	Total
330	54	384

II.—Departures

The number of Indians who left the Colony at their own expense was:—

Males	Females	Total
1294	501	1795

Several batches of New Immigrants introduced in 1923 and 1924 were repatriated in 1925 and they are classified as follows:—

Date of departure	Name of Vessel	Men	Women	Boys	Girls	Infant		Souls
						Boys	Girls	
22. 1.25	S.S. Dara	199	59	16	19	...	...	293
31. 1.25	S.S. Japan	184	142	54	43	2	4	429
25. 2.25	S.S. Homayun	69	38	8	15	1	1	132
10. 3.25	S.S. Hymethus	73	20	6	6	...	1	106
9. 7.25	S.S. Japan	21	8	7	5	...	...	41
18. 9.25	S.S. Santhia	2	...	...	...	...	...	2
4.12.25	S.S. Sirsa	4	1	..	...	...	...	5
Total...	...	552	268	91	88	3	6	1,008

Return Passages

There was no Steamer chartered by Government for the conveyance of return Old Immigrants to India, but one old immigrant woman left by the Homayun on 25.2.1925.

III.—Statistics of Indian Population

The total Indian population was on 31st December 1925, 274,475 souls composed of 143,140 males and 131,335 females; of that number 17,101 were Old Immigrants and 253 New Immigrants.

The Indian population may be classified as follows:—

	1923	1924	1925
On Estates	48,239	45,505	42,558
Off Estates	219,121	225,453	231,917
	267,360	270,958	274,475

The Estate population may be classified as follows:—

Men	16,284
Women	11,511
Children	14,763

The ratio of females to males of the total Indian population was:—

1923: 91 to 100; 1924: 91 to 100; 1925: 91 to 100.

The death rates of the Indian population on and off Estates were:—

Year	Death rate on Estates	Death rate off Estates
1924	22.96	28.22
1925	20.30	22.61

IV.—Vital Statistics

Details of Vital Statistics are given in annexure A which has been compiled from figures supplied by estates employing more than 20 servants under verbal contract of service.

V.—Work and Wages

The usual statement of earnings is attached (Annexure B) showing the amount deducted by reason of illegal absence, leave or sickness.

According to the returns furnished the daily average number of labourers, employed by the month, at work during 1925 was 18,018 and the average earnings of the whole body of labourers amounted to Rs. 15,524 allowing for absence, for illness and other causes.

The percentage of working days on which labourers attended was 82.92 or about 248½ days. Of the remainder 14.50 or about 43½ days were lost by absence without leave; .35 or 1¼ days by absence with leave and 2.23 or 6½ days by sickness.

The proportion of daily absences of labourers is thus 17.08 which on an average population of 18,018 labourers gives 3077 absences each daily.

The above statistics deal only with labourers employed by the month and residing on the Estates. It has not been possible to collect from the Estate Managers in time to be included in this report, the statistics previously referred to regarding the number of day labourers employed and the wages earned by them.

VI.—Inspection of Estates

92 Estates were visited by the Inspector of Immigrants during the year 1925 as against 101 in 1924.

That reduced number is due to 9 of those estates having stopped employing servants under verbal contract thus falling out of the control of this Department.

Of the 92 Estates 49 were with Factory and 60 with hospital.

The various camps, labourers' dwellings, hospitals, latrine appliances and the protection of the sources from which drinking water is supplied have been inspected by the Protector of Immigrants on the undermentioned estates during the year under review:—

In Pamplémousses District.—Beau Plan, Belle Vue (Mauricia), Bois Rouge, Bon Air, Mon Rocher, La Rosalie, Solitude, St. André, The Mount.

In Rivière du Rempart District.—Antoinette, Beau Sejour, Bon Espoir, Forbach, Labourdonnais, Mon Loisir, St. Antoine.

In Flacq District.—Argy, Beau Champ, Belle Rive, Belle Vue (Allendy), Bonne Mère, Constance (d'Arifat), Deep River, La Gaiété, La Lucie, L'Etoile, Olivia, Queen Victoria, Rich Fund, Union, Unité.

In Black River District.—Anna, La Mecque, Médine, Grande Rivière Noire.

In Plaines Wilhems District.—Highlands, Réunion, Ebène, Trianon.

In Moka District.—Alma, Bel Etang, Bonne Veine, Cote d'Or, Mon Désert, Sans Souci.

The willingness and co-operation received from the owners and Managers of Estates in the carrying out of the measures suggested to improve the health and welfare of their resident servants during the year is appreciated by the department.

The Estates provided with a hospital were also visited by the Sanitary Wardens of the Medical and Health Department performing the duties of Medical Inspectors to the Immigration Department.

VII.—Estate Hospitals

There were 60 estate hospitals in 1925 as compared with 66 in 1924. The hospitals of St. Hubert, Unité, Belle Rive, Mapou, Bassin and Plaisance were closed down during the year as either these estates had been parcelled out or the number of their residing servants had fallen below 20.

These 60 estate hospitals were under the care of Medical Practitioners in the following proportion:—

Name of Medical Practitioner	Number of Hospitals
1. F. Tennant	12
2. L. du Vergé	13
3. O. Guérin	4
4. P. S. Chauvin	6
5. A. Bourgault	7
6. H. Sauzier	9
7. Ed. Harel	2
8. Ernest Harel	4
9. Roger Chevreau	3
	60

VIII.—Midwives

There were 14 midwives employed on the Estates during the year 1925; 5 at the entire cost of the Estates employing them and which are as follows:—

Beau-Champ, Beau-Sejour, Bel-Air and St. Felix, Rich Fund, St. Antoine. The remaining 9 who receive a remuneration of Rs. 240 per annum from the Dr. de Chazal Fund to attend the poor were stationed on the following Estates:—

Rose Belle, Britannia, St. Aubin, Savannah, Sans Souci, Trianon, Mon Loisir, Le Vallon and Cote-d'Or. The services of the midwife of Highlands were dispensed with in March.

116 midwifery cases were attended to during the year and only 1 still-birth was recorded.

IX.—Suicides

There were 26 cases of suicides among the Indian population during 1925 as against 17 in 1924.

They were ascribed to the following causes:—

	Males	Females	Total
Ill-health	12	3	15
Domestic troubles	3	2	5
Insanity	4	...	4
Liquor influence	1	...	1
Fear of Imprisonment	1	...	1
	21	5	26

Two of the above cases occurred among old Immigrants one of whom was a day labourer.

X.—Crimes and Offences

(1) *Serious Crimes.*—Six Indian offenders were convicted before the Assize Court in 1925 as against 6 in 1924 on the following charges:

Statement of Indian Offenders convicted before the Court of Assizes during the year 1925.

Number of Indian offenders convicted	Crime they have been found guilty of	Sentence
One	Wounds and blows causing death inflicted wilfully but without intention to kill	2 months' imprisonment with hard labour
One	Simple wounds and blows	One year's imprisonment with hard labour
Two	Manslaughter	One 7 years' penal servitude, the other 12 years' penal servitude
One	Bigamy	6 months' imprisonment with hard labour
One	Wounds and blows causing death without intention to kill inflicted wilfully and under provocation.	12 months' imprisonment with hard labour

(2) *Charges brought by the Police against employers or their employees for assault on their labourers.*—There was one case of assault upon labourers during 1925 in which the two offenders were fined Rs. 20 and Rs. 10 respectively.

(3) *Complaints.*—269 complaints were received at the Immigration Office during the year 1925 as follows:—

40 for insufficiency of wages and rations, 110 for excessive task work, 2 for detention of tickets, 8 for assault, 2 for inadequate medical care, 71 for non-payment of wages, 3 for non-acceptance of resignation tendered, 3 for illegal cutting of wages, 10 for having been made to stop work without having been given 14 days' notice, 9 for ill-treatment, 2 charges for inciting some fellow-labourers not to work, 1 for non-payment of value of crop harvested by employer, 1 for detention of effects, 7 from Rodrigues labourers for repatriation after their time of service in Mauritius.

XI.—Strikes

There was no strike during the whole year.

XII.—Administration of the Immigration Department

Mr. Lionel Collet, Assistant Receiver General continued to discharge the duties of Protector of Immigrants during the year.

Mr. L. Besson continued to perform the duties of Inspector of Immigrants in addition to those of Manager of Barkly Asylum and did useful work in that connection.

Mr. I. Rajabally performed the duties of Chief Clerk of the Department to my entire satisfaction.

Good work was performed by the Immigration Staff and the valuable assistance I received from them during the year under review is highly appreciated in as much as the repatriation of the new Immigrants added largely to the work of the Department.

XIII.—New Legislation

No new law was passed during the year.

XIV.—Cost of Immigration

The amount to the credit of the Immigration Fund provided under Article 6 of Ordinance No. 32 of 1922 for the recruitment and introduction of New Immigrants was on the 31.12.25 Rs. 25,242.01.

XV.—Administration of Estates of Deceased Immigrants

The Curator of Vacant Estates was vested with 11 estates of deceased Immigrants during 1925 representing a value of Rs. 112.50 in cash and Rs. 646 as the approximate value of immoveable properties taken charge of or a total of Rs. 758.50.

The Protector who is by law the guardian ex-officio to all immigrants who are minors and orphans of Immigrants had under his administration the property of minors of the aggregate value of Rs. 21,846.64 as follows :—

Amount deposited in the Government Savings Bank ...	Rs. 14,026.64
Value of landed property or other assets ...	7,820.00
Total ...	<u>21,846.64</u>

XVI.—Destitute Indians

Relief was granted to destitute persons of Indian extraction during the year 1925 as follows :—

Outdoor relief in Cash (i) in India ...	29
(ii) in Mauritius ...	606
Institutional relief in Mauritius ...	335

The above figures show that 941 persons of Indian origin were in receipt of poor relief in Mauritius during 1925.

The Indian population on 31st December 1925 was 274,475 souls so that destitution among Indians was prevalent to the extent of only 3.42 per 1000 against 19.63 per 1000 among the non-Indian population estimated at 119,233 souls.

XVII.—Settlement of Free Indians

The total area of land cultivated by Indians on the 31st December 1925 was 85,000 arpents approximately or 42.4% of the total area under cultivation and 44.3% of the total area under sugar cane as shown below :—

Year	Land under cultivation			Planted in Sugar Canes		
	Total area under cultivation	Area cultivated by Indians	%	Total area in sugar canes	Area cultivated by Indians	%
1921 ...	213,000	90,000	42.2	179,780	82,420	45.8
1922 ...	213,000	90,000	42.2	178,000	83,000	46.6
1923 ...	205,627	92,000	44.7	171,227	76,880	44.8
1924 ...	202,465	89,000	43.9	167,165	73,970	44.2
1925 ...	200,447	85,000	42.4	163,497	72,531	44.3

XVIII.—Savings

The number of Indians holding deposits in the Government Savings Bank in 1925 was on 30th June 1925, 15,810 and the total Balance to their credit Rs. 2,406,251.74.

In 1924 the Indian Population had 15,730 accounts at the Government Savings Bank with a total balance of Rs. 2,687,010.38.

Remittances

The remittances to India through the Post Office amounted to Rs.141,672.11 annas in 1925.

Investments

The total value of real property acquired by old immigrants in 1925 was estimated at Rs. 227,809 and the value of sales at Rs. 212,311.

The estimated net value of Immoveable properties purchased by other Indians (exclusive of Immigrants) exceeded the value of sales by Rs. 5,156,283.

Moveable Property

The Immigrants and other Indians continue to hold the largest number of draft animals, carts and carriages for carrying trade by roads and likewise the largest number of milch cows and goats.

Many are now owners of motor cars, buses and lorries.

XIX.—Education

The number of Indian children who attended the Primary Schools during 1925 was 18,074 as against 17,170 in 1924.

That number is exclusive of those attending the vernacular and other half-time schools not in receipt of Government grants.

XX.—Political Status of Indians

The Indian community possesses the same political rights as the members of the General Population. In 1925 there were 3,700 Indian electors admitted to vote for elections to the Council of Government out of a total of 11,365 on a common electoral Roll.

XXI.—General Remarks

The licence granted by the Government of India for the re-opening of Indian Emigration to Mauritius expired on 31.5.24; at that date, out of the authorised number of 1,500 male adults only 732 had arrived in the Colony. In accordance with the views expressed by the Chamber of Agriculture a telegram was sent to the Government of India (on 16.4.24) applying for the extension of the licence for 1 year. In reply the Government of India proposed to depute an officer to Mauritius to investigate upon the effects of further immigration on the economic conditions of the resident Indian community before considering the request for further emigration. The proposal of the Government of India was accepted by the Chamber of Agriculture and in conformity therewith Mr. Kunwar Maharaj Singh, C.I.E. was deputed and he landed in Mauritius on 19th December 1924. He was given all facilities for making his enquiries, visited about 30 sugar estates, conversed with the leading members of every community and left the Colony on 31.1.25. His report, though friendly to the great employers of labour, concluded in the inadvisability of introducing any further immigrants into the Colony. Local conditions had changed in the course of the year and more hands had become available for field and other labour. The planters expressed no further wish for the immigration of labourers from India and the question dropped.

Meanwhile, as anticipated in the concluding paragraph of my report for the year 1924, the Indian labourers newly introduced in the Colony were steadily applying for repatriation. Their reasons were the same as those exposed by me in paragraphs 5 and 6 of my report quoted above.

The number of these immigrants and their dates of departure for India have been given in section II.

LIONEL COLLET,
Protector of Immigrants.

ANNEXURE A.

The births, still-births, deaths, causes of deaths and infantile mortality among the Estate population were as under :—

DISTRICT	ESTATE POPULATION					BIRTHS					DEATHS		CAUSES OF DEATHS															INFANTILE MORTALITY		
	Men	Women	Boys	Girls	Total	Live	Still	Birth-rate per 1,000 of population	Birth-rate per 100 of women	Proportion of still-births to live births	Number of deaths	Rate per 1,000	Malaria	Pneumonia	Bronchitis	Influenza	Tuberculosis	Dysentery	Enteritis	Typhoid fever	Plague	Ankylostomiasis	Béri-béri	Child-birth	Infantile debility	Accident	Other causes	Infants under one year?	Infants from one year and under five years	
Port Louis ...	289	200	96	102	687	1	1	1.4	.5	100.	14	20.3	288	5	69	168	3	64	13	12	...	...	11	...	...	...	...	453	1	...
Pamplemousses ...	879	568	441	431	2,319	70	6	30.1	12.3	8.5	53	22.8	1,225	35	26	832	25	317	93	4	...	10	28	...	8	10	3	1,250	11	9
Riv. du Rempart...	1,664	1,094	1,041	956	4,755	146	22	80.7	13.3	15.0	93	19.5	3,818	129	982	3,151	34	557	292	53	...	...	154	...	48	35	32	4,313	23	6
Flacq ...	2,491	1,928	1,087	1,044	6,550	180	48	27.4	9.3	26.6	181	20.0	4,389	79	346	1,175	96	355	276	33	3	...	492	3	10	8	238	3,246	15	12
Grand Port ...	3,497	2,236	1,209	1,256	8,198	254	85	30.9	11.3	13.7	174	21.2	7,388	286	769	2,358	110	985	595	109	4	...	668	8	81	23	30	5,393	41	23
Savanne ...	4,302	3,122	2,115	1,781	11,320	414	58	36.5	13.2	14.0	273	24.1	8,489	171	815	4,105	146	1,033	517	115	6	...	1,372	1	27	27	96	6,769	49	34
Plaines Wilhems..	660	503	503	435	2,191	88	6	40.1	14.8	6.8	36	16.4	928	23	186	249	39	187	184	15	...	1	405	1	27	9	4	1,202	11	5
Black River ...	115	94	55	69	333	14	1	40.2	14.9	7.1	9	27.0	414	8	2	92	20	11	49	1	...	2	...	...	...	...	176	1	...	
Moka ...	2,387	1,676	1,109	1,033	6,205	210	17	33.8	12.5	8.0	81	13.0	1,647	42	241	735	63	480	357	13	8	...	437	...	39	35	30	2,728	31	5
Total ...	16,284	11,511	7,656	7,107	42,558	1,377	194	32.3	11.9	14.0	864	20.3	28,536	778	3,436	12,865	536	3,989	2,376	355	23	11	3,509	5	240	147	433	25,530	183	94

The Crude death-rate among Indians (Immigrants and others) working and residing on Estates and of the total population compares as follows :—

District	Death rate per 1000 on Estates	Death rate per 1000 in total population	District	Death rate per 1000 on Estates	Death rate per 1000 in total Population
Port Louis ...	20.3	26.1	Savanne ...	24.1	24.1
Pamplemousses ...	22.8	26.5	Black River ...	27.0	32.4
Riv. du Rempart ...	19.5	23.3	Plaines Wilhems ...	16.4	19.4
Flacq ...	20.0	24.8	Moka ...	13.0	21.8
Grand Port...	21.2	26.0			
			Average for the 9 districts ...	20.3	24.1

IMMIGRATION DEPARTMENT

ANNEXURE B

1925—AVERAGE EARNINGS—MEN

DISTRICT AND ESTATE	NAME OF OWNER	Mean number of labourers employed	Percentage of working days				Average monthly earnings	
			Worked by each	Lost by each			Actually earned	Possible earnings
				Unlawful absence	Absence with leave	Sickness		
PORT LOUIS								
Albion Dock ...	The Albion Dock Cy. ...	192	91.52	5.74	.07	2.67	26.07	28.33
New Mauritius Dock ...	The New Mauritius Dock Cy. ...	178	87.32	8.98	.48	3.22	23.92	27.39
	Mean for Port Louis District ...	370	89.42	7.36	.27	2.94	24.92	27.96
PAMPLEMOUSSES								
Beau Plan ...	The Beau Plan Sugar Estate Cy. ...	116	82.13	14.63	.14	3.10	22.81	27.77
Belle Vue Mauricia ...	Messrs. Harel Brothers ...	165	78.39	18.84	.17	2.60	12.60	16.07
Mon Rocher ...	Messrs. Harel Brothers ...	29	86.13	12.85	.55	.47	24.94	28.95
Grande Rosalie ...	The Mauritius Sugar Estates Cy. Ltd. ...	239	77.55	16.53	.40	5.52	13.23	17.06
Solitude ...	The Solitude S. E. Cy. ...	140	84.67	14.00	.18	1.20	16.22	19.15
St. André ...	The St. André S. E. Cy. ...	26	91.30	5.00	...	3.70	27.63	30.26
The Mount and Rosalie Constance	The Mount S. E. Cy. ...	307	82.82	14.31	.41	2.46	15.82	19.10
	Mean for Pamplemousses District ...	1,022	83.28	13.73	.26	2.72	19.03	22.62
RIV. DU REMPART								
Antoinette ...	The Antoinette S.E. Cy. ...	284	88.22	9.62	...	2.16	12.78	14.48
Beau Séjour ...	The Beau Séjour S. E. Cy. ...	326	82.79	14.53	...	2.68	11.02	13.31
Bon Espoir ...	Messrs. Harel Brothers ...	82	84.37	10.17	4.23	1.23	24.68	29.25
Forbach ...	Mrs. Widow H. Souchon & Cy. ...	118	85.51	12.81	.56	1.12	8.95	10.46
Labourdonnais ...	The Labourdonnais S. E. Cy. ...	459	84.42	14.78	...	.80	9.19	10.89
Mon Loisir Rouillard ...	Mr. Edouard Rouillard ...	39	93.54	5.86	...	.60	18.41	19.68
Mon Loisir and BelleVue	The Mon Loisir S. E. Cy. ...	581	77.88	20.89	.23	1.00	8.34	10.70
Mare Sèche ...	Mare Sèche Co. Ltd. ...	10	89.88	9.66	.20	.26	30.15	33.54
Mont Mascail ...	Succession J. P. François ...	14	93.55	6.45	...	...	30.03	32.10
St. Antoine ...	The St. Antoine S. E. Cy. ...	851	86.04	10.59	1.86	1.51	11.95	13.69
	Mean for Rivière du Rempart ...	2,159	86.62	11.53	.71	1.14	16.55	18.83
FLACQ								
Argy ...	Mr. Bouchet & Co. ...	100	78.10	18.34	.11	3.45	14.56	18.64
Australia ...	The Mauritius Sugar Estates Cy. ...	63	86.05	12.66	...	1.29	10.43	12.12
Beau Champ ...	The Mauritius Agricultural and Industrial Cy. ...	367	79.80	14.36	3.97	1.87	13.19	16.53
Belle Rive ...	do. do. do. ...	54	86.24	12.03	.53	1.20	12.48	14.47
Belle Vue ...	The Constance and La Gaieté S. E. Cy. ...	68	85.66	14.25	.08	.01	12.20	14.24
Bonne Mère ...	The Bonne Mère S. E. Cy. ...	54	89.22	10.78	...	...	12.98	14.55
Constance d'Arifat ...	The Constance and La Gaieté S. E. Cy. ...	165	80.73	17.83	...	1.39	14.06	17.41
Constance Manès ...	The Constance S. E. Cy. ...	38	84.79	13.10	.37	1.74	15.22	17.95
Deep River ...	The Deep River S. E. Cy. ...	184	78.78	22.46	.19	3.57	16.09	17.74
Etoile ...	The Mauritius Sugar Estate Cy. ...	201	87.00	12.13	.06	.81	16.29	18.72
La Caroline ...	Messrs. Rivaland Brothers & Cy. ...	55	79.49	19.00	...	1.51	14.36	18.06
La Gaieté ...	Messrs. A. Cayeux and A. Lagesse ...	84	80.32	16.55	.14	2.99	12.38	15.86
La Lucie ...	Mr. J. A. Duclos, C.M.G. ...	17	78.37	19.62	.74	1.27	14.16	18.07
Olivia ...	The Mauritius Agricultural and Industrial Cy. ...	95	84.26	10.12	3.67	1.95	13.69	16.24
Queen Victoria ...	The Queen Victoria S. E. Cy. ...	232	81.85	16.30	.46	1.39	14.29	17.46
Rich Fund ...	The Rich Fund S. E. Cy. ...	211	83.62	11.87	1.40	3.11	15.88	18.99
Uniqu ...	The Union Flacq Sugar Estate Cy. ...	267	78.97	17.80	1.44	3.79	14.05	18.24
Unité ...	Mr. R. Gōjadhur ...	25	86.78	13.22	...	...	14.71	16.95
	Mean for Flacq District ...	2,280	82.39	15.14	.73	1.74	13.77	16.76
GRAND PORT								
Beau Vallon ...	The Beau Vallon S. E. Cy. ...	429	83.64	13.87	...	2.49	17.51	20.93
Deux Bras ...	do. do. ...	200	86.76	8.88	.51	1.85	17.39	19.59
Eau Bleue ...	The Eau Bleue S. E. Cy. ...	12	76.81	23.19	...	...	14.81	19.28
Ferney ...	The Ferney S. E. Cy. ...	245	78.62	15.25	.70	5.43	13.91	17.69
Gros Bois ...	The Gros Bois S. E. Cy. ...	261	84.88	15.12	...	...	16.76	19.74
La Baraque ...	La Baraque Ltd. ...	229	78.47	17.84	.87	2.82	13.61	17.34
Le Val ...	The Le Val S. E. Cy. ...	271	79.16	18.75	...	2.09	13.29	16.79
Le Vallon ...	The Le Vallon S. E. Cy. ...	348	78.21	20.66	.01	1.12	12.70	16.24
Mon Désert Carié ...	Messrs. E. and P. Carié ...	235	72.40	26.84	...	.76	11.91	16.45
New Grove ...	The Mauritius Agricultural and Industrial Cy. ...	113	88.41	9.33	.04	2.22	14.64	16.56
Riche-en-Rau ...	The Beau Vallon S.E. Cy. ...	370	79.02	14.73	3.88	2.87	15.64	19.79
Rose Belle ...	The Mauritius Agricultural and Industrial Cy. ...	237	89.32	9.05	...	1.63	16.65	18.64
St. Magdalena ...	The St. Magdalena Cy. ...	18	83.44	6.92	...	9.64	18.10	21.69
St. Hubert ...	Mr. R. Gallet ...	13	83.75	15.48	.77	...	15.13	18.06
Sauveterre ...	Mr. Ahlaman Suhawon ...	138	79.76	17.83	...	2.41	12.36	15.50
Savinia ...	Mr. B. d'Arifat ...	85	74.70	23.26	.59	1.45	10.61	14.20
St. Hubert Cy. ...	Messrs. Lincoln, Dufourg and Arnulphy ...	14	73.48	24.95	1.57	...	14.27	19.42
Union Vale ...	Ww. Samouilhan & Co. ...	178	80.34	16.72	.35	2.59	11.31	14.07
	Mean for Grand Port ...	3,391	80.75	16.59	.48	2.18	14.48	17.88

1925—AVERAGE EARNINGS—Men—(Continued)

DISTRICT AND ESTATE	NAME OF OWNER	Mean number of labourers employed	Percentage of working days				Average monthly earnings	
			Worked by each	Lost by each			Actually earned	Possible earnings
				Unlawful absence	Absence with leave	Sickness		
SAVANNE								
Beau Bois ...	The St. Aubin S. E. Cy. ...	313	84.15	12.98	.22	2.70	13.40	15.92
Bel Air St. Félix ...	Messrs. A. J. Wilson & Co. Ltd. ...	519	83.44	14.16	.20	2.20	12.03	14.42
Bel Ombre ...	The Bel Ombre S. E. Cy. ...	293	79.70	19.31	.04	.95	16.62	20.85
Bénarès ...	Lady Naz & Co. ...	266	83.60	11.07	.06	5.27	15.54	18.58
Britannia ...	The Anglo-Ceylon & General Estates Cy. ...	557	86.76	7.19	.78	5.27	12.06	14.82
Combo ...	The Combo S. E. Cy. ...	120	81.91	14.18	.21	3.70	13.26	16.19
Colmar ...	Mr. Ahlman Suhawon ...	37	83.66	16.34	...	...	12.27	14.66
Riche Bois ...	The Anglo-Ceylon & General Estates Cy. ...	284	88.45	9.34	.06	2.15	15.61	17.65
Rivière des Anguilles ...	Mr. Senneville & Cy. ...	370	90.17	5.60	.18	4.05	15.28	16.94
St. Aubin ...	The St. Aubin S. E. Cy. ...	601	85.46	12.28	.09	2.17	12.92	15.12
St. Félix ...	The St. Félix S. E. Cy. ...	180	83.37	13.92	.39	2.32	19.07	20.47
Savannah ...	The Savannah S. E. Cy. ...	284	82.60	14.21	.58	2.61	14.84	17.95
Terracine ...	The Terracine S. E. Cy. ...	257	79.76	15.29	.25	3.70	15.15	19.00
Union ...	The Union S. E. Cy. ...	538	86.96	10.47	.24	2.33	14.54	16.72
	Mean for Savanne District ...	4,619	84.29	12.66	.24	2.81	14.53	17.09
PLAINES WILHEMS								
Bagatelle ...	The Anglo-Ceylon and General Estates Cy. ...	87	73.96	19.42	.34	1.28	11.05	18.99
Highlands ...	do. do. do. ...	150	85.42	14.19	.35	.85	14.39	16.85
Ebéné ...	The Standley S. E. Cy. ...	281	89.12	9.52	.12	1.24	11.40	12.79
Réunion ...	The Réunion Sugar Factory ...	290	82.00	17.51	.12	.37	13.10	15.97
Trianon ...	Messrs. Harel and Barolay ...	318	87.85	9.69	.66	1.80	12.67	14.42
	Mean for Plaines Wilhems ...	1,126	84.68	14.06	.25	1.01	12.52	14.80
BLACK RIVER								
Médine ...	The Médine S. E. Cy. ...	183	75.82	20.84	.08	3.26	13.45	17.73
Anna ...	Anna S. E. Cy. ...	66	68.41	21.55	.23	9.81	8.87	12.97
La Mecque ...	Mr. M. A. Wiéhé ...	42	81.35	18.65	...	...	9.44	11.60
	Mean for Black River ...	291	75.19	20.35	.10	4.35	10.59	14.10
MOKA								
Alma ...	Alma Ltd. ...	568	83.29	15.59	.09	1.03	14.40	17.30
Bel Etang ...	The Bel Etang and Sans Souci S. E. Cy. ...	435	69.18	28.51	.27	2.04	11.65	16.84
Bonne Veine ...	Bonne Veine Ltd. ...	194	87.41	10.25	.05	2.29	12.55	14.35
Côte d'Or ...	Côte d'Or Ltd. ...	199	88.37	15.16	...	1.47	15.18	18.21
Mon Désert ...	The Mon Désert S. E. Cy. ...	583	80.12	19.18	.09	.61	15.96	19.92
Sans Souci ...	The Bel Etang and Sans Souci S. E. Cy. ...	582	77.82	21.31	.03	.84	16.23	20.85
Grosse Roche ...	do. do. ...	97	73.22	26.58	...	.20	9.74	13.30
Bois Clair ...	do. do. ...	102	82.68	16.00	.05	1.32	10.51	12.72
	Mean for Moka District ...	2,760	79.64	19.07	.07	1.22	13.28	16.68
	Mean for the Colony for 1925 ...	18,018	82.92	14.50	.35	2.23	15.52	18.51