

Government of Madras

HOME (EDUCATION) DEPARTMENT

G.O. No. 723, 6th June 1918

Industrial education

Recording letter from the Officer in charge of the Department of Industries expressing his views in regard to the policy to be followed in the matter of industrial education for mechanics and requesting him to submit detailed proposals for the opening of a mechanical Engineering school in the Northern Sirkars and for the permanent retention of the Madras Trades School.

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READ—the following papers:—

1

Letter—from C. A. INNES, Esq., I.C.S., Officer in charge of the Department of Industries.

To—the Secretary to Government, Home (Education) Department.

*Dated—*Madras, the 30th January 1918.

No.—G.C.-105.

As Government are aware, Mr. Fyfe, the Inspector of Technical Schools, has been occupied during the past year in inspecting systematically the various industrial schools in the Presidency with the object of formulating proposals for their improvement. I have now the honour to submit, for the information of Government, a copy of his report, and I have decided to take the opportunity of stating my own provisional views on the subject. I agree with Mr. Fyfe that we need not concern ourselves at present with such schools as lace schools, nor do I propose to embark on the subject of technical as distinguished from industrial education. In this letter I propose to confine myself merely to the training of mechanics in which term I include fitters, turners, moulders, blacksmiths, pattern makers, carpenters and so on. There is a great demand for skilled mechanics of these classes in the Presidency, and the most pressing problem at present is what action Government should take to assist in meeting that demand. I agree also with Mr. Fyfe that it would be premature at present to formulate proposals for a code of industrial education. Clear ideas and a policy are what we want. The correspondence and discussion in the last seven years have been interminable, but no conclusions have been arrived at, and our policy is still one of drift. The Indian Industrial Commission will no doubt have much to say on the question, but there is no reason why we should not think it out for ourselves, and we can then test the soundness of our conclusions by the recommendations of the Commission.

2. In order to make this letter complete in itself, I append below a brief resume of the history of industrial education in Madras. It dates back to 1884 when Mr. Grigg, then Director of Public Instruction, was called upon to submit proposals for the encouragement of scientific and technical education in the Presidency. He proposed a comprehensive scheme of development divided into three main sections :

(1) He believed that "to institute public examinations in any suitable branch of knowledge is to create a demand for instruction in them". Accordingly he proposed to start examinations in some sixty different branches of technical science, art and industry.

(2) He proposed grants-in-aid on a liberal scale to institutions providing facilities for industrial and technical education, as well as scholarships and furniture grants.

(3) He proposed the development of the College of Engineering, the School of Arts and the Agricultural College into institutions dealing with the several connected branches of technical works. Improved provision was to be made for instruction in

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biology and chemistry in the chief first-grade colleges, while practical training in industries was to be provided in the workshops of the Madras Municipality and the Madras Railway.

3. As the result of these proposals, examinations were started and syllabuses drawn up in 63 different subjects, a new chapter in the Grant-in-Aid Code was approved, and the gradual extension of work at the Agricultural College and School of Arts was approved. But no notice was taken of the suggested use of Railway and Municipal workshops for practical training.

4. In the ten years preceding 1907, 22,527 had secured passes in the Technical examinations. But 7,750 passes had been obtained in drawing, 5,203 in commercial subjects, 3,456 in Civil Engineering, 1,483 in Sanitary Science and 1,062 in Agriculture, the subjects above account for 18,954 of the passes. In the remaining subjects the great majority of passes had been in the Elementary and the Intermediate grades.

5. In these ten years, Rs. 25 lakhs had been spent on technical education, but the results were unsatisfactory. Less than 3,000 children were receiving technical instruction in the various handicrafts and of these less than 900 were non-Brahman Hindus, the class from which the hereditary workers were drawn.

6. Mr. Grigg's scheme was thus a failure. Only part of it was carried out and valuable suggestions were ignored. The attempt to create examinations without first providing qualified teachers and adequately equipped training institutions was an inversion of the true order of progress. Finally, no attempt was made to bring the scheme into relation with the industrial needs and conditions of the country. The scholarships too were not confined to men of the artisan type, and the scholarships were often conferred on boys who merely wished to become peons, clerks and so on.

7. A circular addressed to leading employers of labour in 1907 elicited information that several large employers of labour in the Presidency attached no importance to the possession of a certificate of having passed the Government Technical Examinations.

8. The Hon'ble Mr. (now Sir A. G.) Cardew who wrote the note for the Industrial Conference from which the above particulars are taken deduced from the past history of the subject in Madras the principle that "in order to be of practical value technical education must be developed in relation to the industrial needs and conditions of the country". A similar proposition was laid down by the Naini Tal Conference, viz., "that technical work should be connected with a local industry of the province and have a definite object". The Industrial Conference accepted these principles. It defined the object of industrial education as "instruction in the performance of definite operations not necessarily involving the teaching of general principles but only of their application," and it then proceeded to lay down certain propositions, viz. :-

(1) Industrial instruction should arise out of and be developed to suit the needs of existing industries.

(2) A list should be made of the trades and manufactures of the Presidency which are of sufficient importance to justify the establishment of special industrial schools in relation to them.

(3) Industrial schools should be located at the centres where the connected industries are carried on.

(4) The primary object should be the improvement of the work of the hereditary artisan classes. The instruction of others should be only a secondary object. Importance should be attached to efficient and economical manufacture and to true costs being worked out.

9. The industrial schools of the Presidency were inspected in 1909-10 by Mr. Cotton. For his report see G.O. No. 2576, Revenue, dated 5th August 1910. He alluded generally to "the absence of guiding principles, the accidents of location in the case of schools under mission control, and the more or less fortuitous selection of subjects for instruction". "The schools themselves were located at Christian centres and without reference to local trade or requirements, and the tendency has been to create an entirely new class of artisans without inherited manual aptitude, and therefore more prone to abandon the trade which they have been taught when other forms of employment seem more attractive." He feared that many industrial schools

had been "nothing but happy hunting grounds for purposeless stipendiaries and had advanced hardly at all the general standard of industrial efficiency." He suggested that a complete survey should be made of the position in order that a true perspective might be obtained and that it was essential that arrangements should be made to ensure without wanton injury to existing institutions that this perspective should be preserved in the future. The first principle should be "co-ordination between the instruction given in industrial schools and the local industries of the province."

10. The next point requiring notice is Mr. Chatterton's scheme for the industrial education of mechanics. The main feature of the scheme was a system of State apprenticeship by which each boy would be apprenticed to a particular trade for a period of years, and it was also proposed to establish a school in an industrial centre like Perambore where the apprentices would receive such elementary technical instruction as their educational attainments would permit them to assimilate. The scheme was referred to a committee which was composed largely of gentlemen connected with the various engineering firms and workshops in Madras; and this committee passed a number of resolutions, the most important being that a system of State apprenticeship should be established among the engineering shops north of Madras, and that some provision should be made for technical training in a school outside the workshops. The Government accepted generally the recommendations made, and called, in August 1912, for definite proposals for the establishment of State apprenticeships and the opening of a technical school on the lines advised by the committee. Tentative proposals were submitted shortly afterwards but the consideration of them was delayed pending the receipt of the orders of the Secretary of State on the constitution of the Department of Industries and the question also arose whether, in addition to mechanical engineering, the facilities for technical education in the proposed school should not be extended to other branches of work such as motor engineering. Another committee was appointed to consider this question in 1914 and also to work out detailed proposals both for the school and for the system of apprenticeships. This committee, which was composed largely of men of practical experience, considered that such technological education as was necessary in the Presidency might, for the present, be conveniently arranged for by means of scholarships to the Victoria Technical Institute at Bombay, and three scholarships of the value of Rs. 30 per mensem each for four years are now awarded to natives of the Madras Presidency for the study at the above institute either of Textile Manufacture, Technical and Applied Chemistry or Sanitary Engineering and Plumbing, as well as three scholarships of the same value for the study of Mechanical and Electrical Engineering at the Madras College of Engineering. The committee also proposed that extension classes should be provided in the proposed Trades school for subjects such as fitting and turning, blacksmith's work, foundry work, carpentry and joinery, plumbing and sanitary work, brickwork and masonry, electric wiring and fitting, motor-car work and motor-car driving, weaving and dyeing, metal work and metal spinning. As the result of this recommendation, the Government Trades School was opened experimentally in 1916. It is now in the second year of its existence, and classes have been opened in mechanical engineering (1st and 2nd year), plumbing (1st and 2nd year), electric wiring, and machine drawing while there are also a Perambur apprentices class and a vernacular drawing class. The scheme for State apprentices is in abeyance.

11. I need not refer at length to the draft code submitted by Mr. Tressler in 1915. The code represented much labour and contained some valuable features, particularly the syllabuses drawn up for the different courses proposed. But in its final form it was criticised in essential points by various practical men who were consulted, and was not approved by Government. The net result therefore of several years discussion is that we are not much further on than we were ten years ago, the only important development having been the Government Trades school. The floating population of mechanics in Madras, judged by the numbers that have been recruited for service overseas, is large. But most of these men have picked up such training as they possess in the commercial workshops, and it is believed that two factors militate against the majority of apprentices becoming really skilled workmen, viz., (1) a low standard of general education and (2) a certain restlessness which drives them from shop to shop whenever they see a chance of earning an anna or two more. Apart

from the workshops, the facilities for training mechanics and artisans are provided only by the so-called industrial schools. In the present connection, we are concerned only with seventeen of these schools. Twelve of them make carpentry their main subject, but five of them make a feature of mechanical engineering and profess to turn out fitters, turners and blacksmiths.

12. Hard things have been said about these schools in the past, as will be seen from the preceding paragraphs, and the latest condemnation comes from the report of Colonel Atkinson and Mr. Dawson on their enquiry into the question how technical institutions can best be brought into closer touch and more practical relations with employers of labour. I quote the following extract from the report:—

Industrial schools as they exist in India have no parallel in any other country and seem to be indigenous in India. They certainly are not analogous to the English trade schools. Except so far as missionary efforts for orphans are concerned, they have been condemned in principle and practice again and again, and the general opinion expressed during our inquiry is that they are useless for turning out the required class of skilled artisans in the professions under discussion. We are of the opinion that industrial schools seldom can recruit from the right classes, they are generally inefficient and costly, the pupil is not brought into contact with the trade he is learning, he lacks training in economy of production, and above all the hours of labour to which he has been accustomed unfit him for the long workshop hours to which he will have to conform in after-life. Allowing for argument that an industrial school can turn a boy out as a first-class turner, this boy will have been for seven years at the school where he has done four hours' manual training a day. Is it surprising if he turns out an unsatisfactory and inefficient workman when he has to work 12 hours a day in a workshop under commercial conditions? At the school he takes his time over each job; in the workshop each lathe and machine has its money value in over-head charges and a manager cannot allow a job to take 8 hours when it should take 6 if he is to turn his shops as a commercial success.

These remarks apply with special force to the industrial schools regarded as training schools for organized industries using machinery. For such industries the proper training school, as has been said over and over again, is the factory, and it seems certain that our so-called mechanical engineering schools which profess to turn out trained workmen are founded on a misconception. The certificates moreover which Government award on the results of the technical examinations in mechanical engineering subjects merely heighten the illusion and are an obvious mistake. The same conclusions apply, though perhaps with less weight, to carpentry schools.

13. It is impossible to ignore the weight of opinion expressed against the industrial schools in their present form, and I think that we may safely lay down certain general principles as a guide to our future policy in the matter of industrial education for mechanics. In the first place, it is universally admitted that the basis of all sound technical instruction must be sound general instruction in the primary and secondary grades. The remarks of the Cawnpore Chamber of Commerce, which are quoted in a note written by Mr. (now Sir S. H.) Butler on technical education, are worth reproducing in this connexion. The Chamber, while regarding the factory as the proper training school for established organized industries using machinery, added: "The committee at the same time fully appreciates the fact that the character of the work produced, even with the great advance that has been made in labour-saving appliances, must be dependent to a great extent on the intelligence and manual skill of the ordinary operative, and they have no doubt that great benefit would be derived from the general training in the schools of the country, being made a more fitting preparation for industrial pursuits than it is at present. These remarks are obviously sound, and I think that it may safely be said that there are three stages in the training of mechanics:—

- (1) A certain amount of general education calculated to develop those mental qualities of alertness, intelligence and adaptability required in all forms of occupation, which education however should be carefully biased towards an industrial career;
- (2) practical training in a commercial workshop; and
- (3) some form of special education in the shape of continuation or extension classes while the practical training in the workshop is going on.

In other words we should give up the attempt to turn out finished mechanics from the industrial schools; the aim of the schools rather should be merely to turn out boys who, by reason of the education they have received, ought to be useful

apprentices. And when there are a large number of apprentices in training in commercial shops, we should endeavour to arrange for continuation or extension classes for them.

14. It is easy enough to lay down these general principles; the difficulty is to apply them to existing schools. The logical course would be of course to give these schools the choice between conforming to our views or being refused aid. But for various reasons it is impossible to adopt this drastic course. Many of these schools have been established for many years, and it would be unfair now to abandon them altogether. Many again are established in localities which are not centres of industries and cannot usefully become mere training schools for apprentices. And for financial reasons the school authorities could not afford to convert their schools into manual training centres or vocational schools. This course would involve on the one hand additional staff and on the other less use of boy and therefore cheap labour in the school workshops out of which the school authorities try to make money. In regard to existing schools, therefore, it would be a mistake as well as useless to make too great a break with the past or to endeavour to insist on revolutionary changes. The only possible course, in my opinion, is to accept the schools as they are, but to endeavour to improve them. Certain general lines of reform are marked out. For instance, in all schools, we ought to insist on a certain minimum standard of general education as a qualification for admission, and we ought to insist on the schools working to an approved syllabus. The question of improvement of staff is even more important. Schools which are supervised by trained European Superintendents should, in present circumstances, be treated more liberally in the way of grants than other schools, and efforts should be made to improve the subordinate staff. The training class at the Tindivanam school is a beginning in this direction. Finally I entirely agree with Mr. Fyfe that the Government Technical Examinations in mechanical engineering and wood working subjects should be abolished. It is not so much that the syllabuses are out of date and the standard far too low. The real objection is that the certificates are positively harmful. They create an impression in the boy's mind that he has nothing more to learn, whereas his education has hardly begun, and they are scoffed at by employers of labour. At a recent conference with the heads of the mechanical engineering shops in Madras, on the subject of the recruitment of skilled mechanics for service overseas, I suggested that the firms should release their skilled mechanics and take on in their stead for further training boys from the industrial schools. The answer was that these boys were of little use and that they were ruined by their Government certificates. The object of the certificate is to certify for the benefit of a prospective employer that the boy has reached a certain standard of competency in the subject in which he has passed. But the employer will not accept the certificate at its face value and the only effect of it is to give the boy a false idea of his own importance. I have no doubt but that we should cease giving certificates of this kind. The boy on leaving a mechanical engineering school should be given merely a school-leaving certificate certifying as to his conduct and as to the syllabus according to which he has been instructed. He should then be registered (if he is willing) in a register in the office of the Director of Industries as a candidate for employment as an apprentice. The Director should endeavour to find him a job, and after two years' service in a commercial workshop, provided his conduct has been satisfactory, he should have an endorsement to that effect made upon his certificate. For the rest I think that much can be done by systematic inspection at least twice a year of each school. An effort ought also to be made to bring the schools into close touch with neighbouring large employers of skilled labour. St. Joseph's Industrial School at Coimbatore places some of its boys at the Podanur Railway Workshops. The head of those should be freely consulted as to the defects noticed in the training of those boys and as to the sort of apprentices he wants. So also the schools at Tanjore, Trichinopoly and Kumbakonam should endeavour to get into touch with the South Indian Railway works at Negapatam.

15. It will be seen that I do not propose any revolutionary changes in respect of existing schools. I think that many of them are founded on a misconception. But they exist, we can hardly abandon them, and we must make the best of them. But if Government accept the views expressed in paragraph 13 above, I think that those

views should guide our future policy. For instance, we should be very careful about recognizing new schools of the same type as the existing schools. A school applying for recognition must show that there is an existing industry in or near the locality where the school is situated, and it must show that it has a well-thought out scheme for meeting the needs of that industry. The same principles should be applied in regard to the proposed mechanical engineering school in the Northern Sirkars which Government is pledged to establish. This question will form the subject of a separate reference, after general principles have been settled. In the meantime, I note that the demand for the school is largely based on the supposition that well-trained mechanics can be turned out by a school, whereas the weight of practical opinion is all against this view, and also that the important industry of the Sirkars is the rice mill industry and that either Bezvada or Dowlaiswaram (where there are Public Works Department workshops) would be a more suitable centre for the school than Cocanada.

16. But while we are bound to maintain the existing schools, I think that we should also endeavour to make a new departure in industrial education. Unquestionably the best effort in the direction of industrial education in the Madras Presidency is that of the Buckingham and Carnatic mills. The mills employ over 10,000 workpeople. Apart from spinning yarn and manufacturing cloth, the companies dye, bleach, and finish cotton yarn and cloth, and pack their own goods for export. They have their own foundries and mechanical and carpenters' shops, and they do their own building and construction work in addition to repairs. Thus they provide work in other branches of employment than in cotton, spinning, weaving and packing, and they afford opportunities for the training of men in many of the fundamental industries of modern times. Steam, oil, gas, hydraulic, compressed air and electric power are all in actual daily use. It is evident therefore that if once a boy obtains a footing, as a half-timer, in the mills, he has, given energy and ambition, plenty of scope for the selection of a definite well-paid trade or calling within the mill compound. Conversely, the mills have an interest in attracting, producing and retaining intelligent workmen, and with this end in view, they have embarked on a well-thought out scheme of education. Originally the education given was purely literary with the result that the ambition of the scholars was mainly to become a writer in the mills. Consequently a definite industrial bias was given to the education by opening classes in such subjects as gardening or washing and ironing clothes, carpentry, blacksmith's work and tailoring, while later on night school classes in technical subjects were started. The schools which are housed in admirable buildings in a compound of over 18 acres and which are supervised by two European ladies—one a graduate, and the other a Kindergarten expert—provide day and night classes. The day classes are intended for half-timers at the mills and for other boys under 14 who are the children of workpeople employed at the mills. Reading and writing in the vernacular, colloquial English, arithmetic, drawing, gardening, hygiene and practical work in carpentry, blacksmith's work and tailoring are taught in these classes. The classes extend from the Kindergarten to the fourth standard, but it is hoped to take them on to the sixth standard. Boys who have a fourth standard certificate may apply to be registered as candidates for employment as apprentice, carpenters, fitters, blacksmiths or mechanics and there are always more applicants than vacancies in these departments of the mills. The vacancies are usually given to school boys. They are given preference owing to their knowledge of colloquial English and of drawing which enables them to follow plans and understand the importance of precise measurements. In the night schools, which are intended for full-timers, the subjects taught are reading, writing and arithmetic in the vernacular, and English up to the seventh standard. Technical instruction is also given in theory of spinning, weaving, practical electricity, geometrical drawing, machine drawing and building construction. The lecturers are foremen and draughtsmen from the mills, and periodical examinations are held by the European officers of the different departments. In other words the mills are carrying out, no doubt unconsciously, the exact recommendation made by Colonel Atkinson and Mr. Dawson in the report to which I have already referred. In paragraph 196 of this report it is stated "that the most promising method of training skilled workmen is to establish manual training schools for children in big centres and near big workshops; the boys to be apprenticed in workshops from 12 to 14 years; during the apprenticeship they are to be obliged to attend afternoon classes to complete their

literary education and finally to obtain some theoretical knowledge of their work". In the case of the Buckingham and Carnatic mills the conditions are of course favourable owing to the immense numbers of workmen they employ and to the number of openings they have for apprentice. Other workshops in the Presidency, the Railway Workshops at Perambur and Negapatam excepted, cannot be expected to provide education for their apprentices. They are too small. "But it is just here that Government ought to come in. As far as I can judge from the students attending the Government Trades School, boys join the various workshops in Madras at the age of 16 or later. In my opinion we ought to provide these workshops with properly educated apprentices, and experimentally I would like to open in Madras what I would call an industrial preparatory school. My idea is that we should begin on a comparatively small scale with about 20 boys who are 12 or 13 years old and who have a certain minimum of general education. They would be taught colloquial English and to read and write it, drawing, workshop arithmetic and a little mathematics, and manual training would be a feature of the school. At 15 or 16 they would be drafted into the shops as apprentices and I believe that most engineering and motor shops in Madras would welcome properly trained apprentices, and in any case we have always the Public Works Department, and Corporation Workshops on whose co-operation we can rely.

17. At the same time I am strongly of opinion that we should continue and make permanent the Government Trades School. There can be no doubt, I think, that this school is on the right lines. Classes have already been opened in Mechanical Engineering (two years), Plumbing (two years), Electric Wiring (two classes), and Machine drawing, and there are also a Perambur apprentice class and a maistries drawing class. The classes are attracting the right class of student, and there are openings for more classes. Space however is a difficulty, and we cannot long remain content with the makeshift arrangement of holding the classes in rented rooms in Georgetown. Continuation classes of this kind are an integral part of any scheme for the training of skilled mechanics and I think that Government must make up its mind to the fact that sooner or later a permanent trades school must be opened somewhere in Georgetown. And as soon as it is opened, we can utilize the building in day time for the industrial preparatory school and in the evening for the continuation classes. There is an ideal site for such a school in the Georgetown Panchama Training school grounds. I understand that every year there is less need for a separate training school for Panchamas, and, if so, I suggest that this site be earmarked for a Government Trades School. It is near the foundries of Madras and it is exactly in the place where a Government Trades School ought to be. If we open a permanent school, we must have a permanent Principal for it, though for lectures in special subjects we shall probably still have to continue to rely on the European employees of the different firms. It is however too early to attempt to work out details.

18. There are two other questions to which it is impossible to avoid a reference in a letter which is intended more or less to define a policy. I allude (1) to the Mechanical Engineering Section of the Madras Technical Institute which, if possible, I wish to open on a recognized basis on the 1st July next, and (2) the proposed Mechanical Engineering School for the Northern Sirkars. Both questions will form the subject of a separate reference, but it is necessary briefly to consider what place the two schools will fill in the general scheme outlined above. Consistency with my own principles as laid down in paragraph 18 of this letter would seem to demand that these schools should merely set out to produce useful apprentices. But as in the case of existing schools there is a difficulty here. It arises partly from the fact that neither in Madras nor in the Sirkars (except possibly at Dowlaiswaram) are there commercial workshops where the apprentices can be sent, partly from the fact that even in commercial workshops there is a danger that a man receives training only in one process, the tendency being for a man who begins as a turner or a fitter to remain as a turner or a fitter as long as he remains in the shop. We can correct this tendency in Madras to some extent by the Government Trades School, but there are not many places which are yet ripe for a school which is essentially intended to provide continuation classes. Also it must be remembered that in the Northern Sirkars and in

Southern India the chief need at present is for general mechanics thoroughly competent to drive and look after:—

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| (1) Rice mills. | (3) Oil-engines. |
| (2) Cotton gins. | (4) Motor-cars. |

At Madura therefore I am proposing a five years' course, partly general education and partly practical workshop training, the latter becoming more and more prominent as the course goes on, followed by special courses in various subjects which may be rice mill machinery, cotton gins or oil-engines. The idea is that either at the end of five years the boy may go off and earn his living as a mechanic on the railway or any other workshop in the Presidency or he may stay on and train himself for some specialized job. The Northern Sirkar school must probably be organized on the same lines. It is perhaps a compromise but it is a compromise necessitated by the conditions and needs of the present stage of industrial education in Madras.

19. It will take some time to work out these proposals in detail, and moreover firms and employers of labour must be freely consulted. I have already consulted Sir C. B. Simpson, Mr. Madeley and Mr. Coats. If Government are prepared to accept generally the views expressed in this letter, the first action to be taken in my opinion is to appoint a whole-time inspector of technical schools. Mr. Fyfe now does the work in addition to his own work as Instructor in Manual Training for European Schools, but this arrangement is merely a makeshift one, and I recommend strongly that he be appointed to the sanctioned post of Inspector of Schools, and that he be relieved of his other duties. I am quite satisfied with his work, and think that he is the best man we can get for the post. He has been through the mill himself, as will be seen from his various certificates, and while he has ideas, he is just the sort of practical man we want in an appointment of this kind. There will be plenty of work for him. The industrial schools require more systematic inspection than they get at present and there is much work to be done not only with the Madura Technical Institute but also in working out in detail the scheme for a permanent trades school. If that school moreover is housed in its own building and developed on the lines suggested, I would propose to make Mr. Fyfe, the Principal of it, with an Assistant Principal to help him and to enable him to tour.

20. I propose therefore that Mr. Fyfe be appointed whole-time Inspector of Schools with effect from 1st April next, and I understand that the Hon'ble Mr. Stone will raise no objection. For the rest, I merely want Government to give general approval, if they are able to do so, to the views expressed in this letter regarding our future policy in the matter of the training of mechanics. If they accept them, more detailed proposals will be submitted in due course for the establishment of a permanent trades school with which will be combined an experimental industrial preparatory school and for the abolition of the Government technical examinations in mechanical engineering and possibly also in wood-working subjects.

ENCLOSURE

Letter—from W. FYFE, Esq., Inspector of Industrial Schools, Madras.
To—the Director of Industries, Madras.
Date—the 17th December 1917.

In continuation of my letter No. 95, dated 27th April 1917, forwarding a note dealing with the industrial schools of the Presidency, I have the honour to state that I have now inspected and reported on all the industrial schools under the control of the department and am therefore now in a better position to express an opinion as to the future development of industrial education. I will deal first with the assisted industrial schools conducted by missions or private persons and assisted by the department.

2. As I have said in a former letter, I prefer to divide the assisted schools into two classes—cottage industry schools and factory industry schools. I am still of opinion that the cottage industry schools teaching lace-making, embroidery, dress-making, needlework generally, are in the bulk conducted on reasonable lines; but are inclined to remain self-contained and to take little or no part in stirring up or developing local effort to found real cottage industries. The schools at Idavangudi, Gudangalam and Tirukkoyilur are notable examples of what may be done. In these places the school acts as a distributing centre for the work done in the local homes by the people who have learnt the work in the school or have picked it up from the school students. These schools supply materials and buy back the finished work, charging a fair rate for taking the risk of selling, and showing a fair profit on the year's work. In most of the schools, however,

the students cease to make lace, etc., immediately they leave school, so that, as far as their after-life is concerned, their time at school has been of no practical industrial use. At present it is doubtless difficult for the management to dispose of the work done in the school alone, but unless the schools can justify their existence by founding or fostering local industry outside the school room, I cannot see that they have much claim to grants from the Industries Department.

3. I do not however recommend any drastic action with regard to the cottage industry schools. The amount of grant which they receive is very small, and I am of opinion that more can be done by systematic and sympathetic inspection and the gradual weeding out of the really inefficient, than by laying down any hard and fast rules for their control.

4. The factory industry schools are, however, a much bigger proposition. They cost a fairly large sum in the way of grant and it is only fair that Government should obtain some tangible return for that expenditure. They consist mostly of schools teaching the wood-working, metal-working and textile trades. In general they have been established by mission bodies purely to afford a means of employment for orphans and destitute children left on the hands of the missions. In a few cases they are managed by practical men with European workshop training and experience, but in general the nominal manager is a minister of religion with no practical training and with considerable demands on his time in other directions. The classes under these managers are simply left to the management of a maistry or storekeeper, the training is very indifferent, and the work turned out compares unfavourably with that of the bazaar workman. It is high time that mission authorities begin to understand that a school workshop, managed by an illiterate maistry costing something less than Rs. 25 per month, employing one or two bazaar workmen and a number of boys as helpers, cannot be recognized as an industrial school in the proper sense of the term.

5. The wood-working and weaving schools are the worst offenders in this respect, owing to the fatal easiness of obtaining the services of cheap carpenters and weavers as teachers, and the natural desire of the mission authorities to obtain cheap cloth and furniture for use in the ordinary mission schools. Mechanical engineering is as a rule in much better hands. Mechanical engineering is an imported industry requiring an expensive plant and generally looked upon as requiring the services of highly-paid skilled men to direct affairs. Managers therefore pause and think and make more elaborate arrangements before opening an industrial school of mechanical engineering, while almost every missionary considers himself competent to run a carpentry or weaving school.

6. It is extremely difficult to suggest what can be done with schools of this type. It is not practicable to close them. Government has assisted them for so long that it would be unfair to suddenly withdraw recognition and support, and if recognition and support were withdrawn, in most cases the missionaries would endeavour to run them unaided for the sake of their orphans, and the last state would be worse than the first. I favour the idea of keeping control over these schools by means of grant-in-aid, and, by careful inspection and advice, trying what can be done to gradually improve them into more useful institutions but I deprecate any effort to open more schools on the same lines.

7. The whole question of industrial education in the Presidency centres round the supply of properly trained teachers. When we are able to secure the services of properly trained Europeans or Indians as superintendents and instructors, we can look for a considerable and rapid improvement. The scheme for training wood-working teachers at Tindivanam will in time do much to improve matters so far as the teachers of carpentry and cabinet-making are concerned, but the question of trained superintendents is a much more difficult matter. If the mission authorities would recognize that industrial education is a serious matter, to be treated seriously, and not as a mere detail of a pastor's duties, something might be done. The only sound method is to employ practical laymen as whole-time superintendents and to choose the men according to their industrial capabilities and not because of their evangelical inclinations.

8. The school at Nayadupetta is perhaps an example of what I mean. This school while under the German Missionaries was conducted by a layman, Mr. Burnmeister, a trained wood-worker, who undoubtedly provided a sound practical training for the boys attending. On the outbreak of war Mr. Burnmeister was in Europe and, when the other missionaries were interned, the school was closed. It was subsequently reopened by the American Missionaries and managed by the pastor at Guntur. The pastor himself had no practical training, he resided miles from the school and had to depend on his maistry (illiterate) and a clerk to do the work for him. On my visit of inspection, I found only six boys in attendance, three being beginners, and as the work being done had degenerated below the bazaar standard and the school being situated in a purely rural district could show little prospect of obtaining situations for the boys even when trained, I recommended that the school be closed.

9. I strongly recommend that in any scheme of reorganization provision be made for an enhanced grant to schools employing full-time superintendents with recognized European workshop training and experience.

10. *Subjects and syllabuses.*—Nominally the schools are recognized to teach certain standards. This grading is based on the syllabus of the Government Technical examinations, and sometimes leads to misunderstanding. Cabinet-making is sometimes taken to mean all the branches of

wood-working, including carpentry, joinery, pattern-making and cabinet-making. That in itself is not particularly serious as the term 'carpenter' in India generally means any woodworker, but when 'blacksmithing' is used to cover moulding, fitting, turning and all other departments of mechanical engineering, it obviously leads to mistake. The schools nominally work up to the standards prescribed in the Government Technical examinations syllabus and many of them put up candidates for these examinations. These examinations, so far as they relate to wood-working and metal-working trades at least, are hopelessly out of date and altogether useless if not actually hurtful. To begin with they are too cheap, the syllabuses are too easy generally, no knowledge of drawing is required, and in short few employers consider the certificates as being of any practical value, whilst many declare that the only effect they have is to give the possessors a false idea of their industrial value and importance.

11. In working up to the rather low standard of these Government Technical examinations the schools pretend or believe (and the fact that they are able to put boys through the advanced grades of these examinations fosters the belief) that they are able to turn out finished workmen, whilst in reality the product of the schools is very far from being anything of the kind. In most cases the industrial school of a mission is a refuge for the idlers and dunces who are found useless in the ordinary mission schools. Nominally a standard IV pass is generally considered the standard of admission to an industrial course but in reality even this ridiculously low standard is seldom insisted on. The training is seldom in any way systematised and it is only lately that I have been able to get some attempt made to work to prearranged syllabuses of work.

12. A few of the schools try to teach the principles of workshop drawing but the boys are seldom sufficiently well educated to take advantage of the instruction which is generally in the hands of ordinary art masters who know little or nothing of the practical application of the subject. Again the work undertaken is limited in scope. In the wood-working schools it consists for the greater part of making rather rough desks and almirahs for the other schools of the mission, whilst the weaving classes are generally employed on the manufacture of a plain easy material used for clothing in the orphanages. Such training is not calculated to develop the pupils' adaptability or to give them a broad outlook on their trade, whilst the lack of the commercial spirit in the institutions is inclined to encourage slackness and waste of time, particularly in the metal-working schools where orders are not very plentiful.

13. With all these disadvantages it is surprising that even moderately good tradesmen are sometimes turned out. It is not surprising that many never complete the course but leave to earn a precarious living in the bazaar, trading on the little knowledge they have been able to pick up.

14. The Madras Anjuman suffers particularly in this respect. Boys come in with little or no education and start on the carpentry or carpet-weaving course, generally because they are destitute or nearly so, and the school provides free meals, but as soon as they have learnt enough to earn a few annas per day, they are off to the bazaar with no thought of completing their training. I fear that an orphanage or hostel and the adoption of the apprenticeship act will be required ere this school justifies its comparatively large grant from Government.

15. The school at Tindivanam has at present 40 boys on the roll taught by two qualified Europeans. The standard of admission is a standard IV pass and is seldom reduced, the course is a long one, about 8 years, is particularly well designed, and the lads generally complete it. Output does not take precedence of tuition, and the boys are very successful in the Government Technical examinations. With all these advantages the lads leaving the school to enter workshops can scarcely be expected to compete on an equal footing all at once with older experienced men. With their training in drawing they may in time take places as foremen, but their low standard of general education is against their ever becoming anything more than foremen or small contractors.

16. None of the schools except Tindivanam are staffed by specially trained men. A few of the superintendents are practical men, but the bulk of the actual teaching work is done by comparatively cheap maistries and the results are poor in proportion.

17. If the schools would frankly recognize that a standard IV general education or less is not a sufficiently good foundation on which to build, and that an industrial school course even if well-thought out and well taught by good teachers, cannot altogether turn out a complete tradesman, we are on the way to better results.

18. I have now come round to the opinion that all that these schools can do is to lay down a good sound groundwork of industrial education designed to turn out apprentices or improvers capable of becoming good all round tradesmen, only after about two years further training and experience in public or private workshops and factories, and as far as possible I advocate the schools being organized with that end in view. I would abolish altogether the present Government Technical examinations so far as they affect the industrial schools and substitute simply a school-leaving certificate saying that the learner has attended a course of industrial training in the artisans' or foremen's grade in such and such a school according to a syllabus a synopsis of which is printed on the back of the certificate and that his work has been satisfactory or otherwise.

19. These certificates should be granted by the manager, and if possible countersigned by the Inspector, a further endorsement being made by the Inspector after the lads have completed two years successfully with an outside firm.

20. The majority of the schools would teach only in the artisans' course taking boys of not less than standard IV pass in general education, giving them a four or five years' course of instruction mostly practical, with about 4 hours per week devoted to workshop drawing and simple theory, the object being to turn out suitable apprentices likely to develop into good all round workmen after a further two years apprenticeship.

21. A few of the schools would conduct a foremen's course taking boys with a form IV pass in general education and giving them a four or five years' course of instruction, about equally divided between (1) practical work, (2) theory and drawing, the object being to turn out apprentices with an education likely to enable them, after two or more years' experience as improvers and workmen, to rise to positions as foremen and departmental superintendents. The scheme of reorganization for the Madras Technical Institute contemplates such courses along with short special courses in engine driving and work of that kind.

22. I would expect both classes of boys to be taken into the works after leaving school on the same footing as improvers for two years. The lad who started with only a standard IV education would generally begin and end as a workman, but the lad who started with a form IV education and who went through the foremen's course would be in a position by reason of his superior education, if he showed adaptability and grit, to rise to higher things.

23. As a first step I think it would be well to ask the principal employers of skilled labour in the Presidency if they would co-operate with the department to the extent of taking in boys trained in the schools on the lines I suggest as improvers on a two years' agreement to complete their apprenticeships, and if they would be prepared to submit reports on the progress of the improvers and assist in drawing up suitable courses of preliminary training for the schools in their districts.

24. I must admit that the scheme of dealing with the existing industrial schools as briefly sketched above does not altogether satisfy me, as it will still turn out lads with no great educational backing to their industrial training. The missions however will not take readily to any drastic changes and, if we can bring the schools more into touch with employers of labour, stiffen up their standard of admission, assist in finding situations for the better trained boys, and so justify greater care in the selection and training of the pupils, a better condition of things will soon be apparent.

25. In place of opening more industrial schools on the same lines I should welcome and encourage the opening of what I term preparatory industrial schools. Proceeding on the assumption that the education provided by the Department of Public Instruction is not specially biased towards industry and that the present lower secondary course or middle school course leads only to the secondary course and the college, and not in the direction of industrial pursuits; I would open schools to take young boys just passed standard IV, to complete their general education by a course of training designed to turn them out educationally fit to enter workshops as apprentices, with a reasonable chance of their becoming good workmen.

26. For example I would take a boy of, say, 12—13 who had completed the primary course and had passed standard IV. I would then give him in the preparatory industrial school a three or four years' course comprising English (reading and writing), workshop arithmetic (practical methods of calculating areas and volumes and the preparation of time sheets and accounts), drawing (free-hand and mechanical), commercial geography (source of different industrial products), mathematics (up to simple equations and graphs), and any other subject likely to be of value in the particular industries of the district along with 4—6 hours per week devoted to workshop practice (manual training) in wood and metal from their own working drawings.

27. The first year of such a course would weed out those with no industrial aptitude, whilst the lads completing the course would be of the kind of material required by employers as apprentices.

28. Such lads entering on a four or five years' apprenticeship in railway or other works would stand a better chance of becoming skilled workmen than the lads selected at random as at present, and even if on completing the course the lads preferred after all not to enter into industrial life, they would still have had a sound practical education of considerable value, no matter what their after-life might be.

29. I am quite aware that it may be suggested that such a school might be run under the Department of Public Instruction and not under this department, but if the Department of Industries is to tackle industrial education successfully, it must begin with the young boys and must be given a fairly free-hand as to the courses of study, etc., even if a little overlapping should occur.

30. I should follow up the preparatory industrial school scheme with stipends for the best boys, under the State aided apprentices scheme dealt with separately, making it a condition of course that they attended continuation classes at the Madras Trades School or elsewhere.

31. Before asking others to experiment with such a scheme, I would prefer that Government opened such classes in the Madras Trades School, providing hostel accommodation if necessary, though at first I think it would be more suitable to board out the few boys admitted from outlying districts.

32. Working under such conditions I would no longer recognize an assisted school as competent to teach a subject (say carpentry) up to the elementary, intermediate, or advanced grades. I would simply recognize the school as

- a preparatory industrial school,
- an industrial school artisans' course,
- an industrial school foreman's course,
- or an industrial school for continuation classes.

33. Before recognizing a school I should insist on the managers submitting prearranged syllabuses of work based entirely on the needs of the locality, along with time-tables, qualifications of staff, etc. Once approved I should insist on the syllabuses being followed, but would allow for revision by the manager once per annum with the approval of the Department. I should fix the grant for three years, taking all the circumstances into account except in the case of continuation classes, where the grant would have to be based on the cost of lectures, attendance, etc., but should be calculated to cover two-thirds of the gross cost.

34. I would issue no new code of regulations for some years to come, but would continue to use the Madras Educational Rules and the Grant-in-Aid Code so far as they relate to the schools under the Department, but would ask that the Director be given powers to issue extra rules from time to time for the more detailed control of the schools, should such seem necessary or desirable. I wish as far as possible to impose no strangling restrictions on the managers or the department. Conditions vary in different localities. The railways require a different type of workman from that employed by general engineering firms and I wish to get the employers more in touch with the schools and leave the managers reasonably free to introduce with the consent of the department such subjects and time-tables as the employers in the district may seem to desire. Until arrangements can be made for the department to issue teachers' certificate to students trained at Tindivanam or elsewhere, I would prescribe no fixed qualifications for industrial school teachers, but when considering the question of recognizing a school due attention would be paid to the qualifications of the staff. Any change of staff would require to be reported to the Inspector and the qualifications of the new teacher submitted for departmental approval.

35. *Madras Trades School.*—The Madras Trades School is now about half-way through its second session. It started last year with only two classes and has now classes in—

- (1) Mechanical Engineering, first year.
- (2) Mechanical Engineering, second year.
- (3) Plumbing, first year.
- (4) Plumbing, second year.
- (5) Electric Wiring, first year (two classes).
- (6) Machine Drawing, first year.
- (7) Maistries (Vernacular), first year.
- (8) Perambur Railway Apprentices, two classes, Mechanical Engineering and Mechanical

Drawing, 4 hours per week.

36. The school has so far proved a great success and I think that it is generally admitted that it ought to be continued and developed. I should like next session to have classes in—

- Mechanical Engineering, first, second and third years.
- Plumbing, first, second and third years.
- Electric Wiring, first and second years.
- Machine Drawing " "
- Maistries " "
- Perambur Apprentices (two classes of 20 for 4 hours each).
- Practical Mathematics, first year.
- Printing Trades classes in proof-reading and composing, adding machine work in later years.

37. I fear however that there will be difficulty in starting all these new classes as the present accommodation is fully taxed and to rent more accommodation is going to increase the cost of the school, more perhaps than the present financial stress will warrant. I will however put up proposals for next year's work a little later on in the session, but the question of much greater accommodation will have to be tackled soon and I ask you therefore to consider as early as possible the question of submitting to Government a scheme for establishing the Trades school in a permanent building with a permanent staff, with extension or continuation classes in the mornings and evenings and a preparatory industrial school course during the day.

38. The cost of such an institution will be heavy but I believe the results would justify the outlay.

39. My programme for the next few years then would briefly be to—

(1) take the existing assisted schools and to endeavour to get them to concentrate on an attempt to turn out men with a sound enough industrial or trade training to enable them to be taken into workshops not as full fledged journeyman but as improvers with two years more apprenticeship to serve (paragraphs 18—23);

(2) to drop the present Government Technical Examinations so far as our schools are concerned and to issue a school-leaving certificate endorsed by the Inspector (paragraphs 18—19);

(3) to develop the Madras Trades School as a permanent school in its own building with its own permanent staff and such spare time staff as might be necessary (paragraphs 35—38);

(4) to encourage the opening of preparatory industrial schools (paragraphs 25—31) and to start with one in the Madras Trades School as a model for others to work on (paragraph 37);

(5) to attach Teachers' training classes to suitable existing schools on the lines of the Tindivanam scheme dealt with separately (G.O. No. 1439, Home Education), dated 15th November 1917 and provide for the issue of teachers' certificates to those trained in such institutions;

(6) to try what can be done by means of the Departmental Bureau to bring employers and schools more in touch with each other by finding for employers the type of apprentices they require and for schools such openings as the lads are fit for.

40. Such a programme is fairly elaborate and if undertaken will require considerably more money and personal attention than the schools are able to receive at present, but I should prefer to discuss the administrative details with you in person before committing my ideas to paper, contenting myself with the suggestion here that, if and when the Madras Trades School is established, the Inspector of Industrial Schools should have his office and office staff in the school buildings, the senior Lecturer or Superintendent acting as his assistant and under secretary and taking his place when on tour or absent on leave. Such an arrangement would ensure continuity of policy and keep the outstation schools in touch with the central institution.

41. I attach for easy reference a list of the schools under the department with a short note on the present state of each.

Sub-Enclosure.

Number and name of institution.	Number on rolls.	Subjects taught.	Grant awarded.	Remarks.
1. Madras Technical Institute.	81	Wood-working, metal-working and weaving (to be started).	Rs. ..	Government institution at present being reorganized. The new scheme contemplates an artisans' course and a foreman's course in General Mechanical Engineering, and carpentry, with short courses in engine driving. Weaving will be started when the new buildings are ready.
2. Coimbatore St. Joseph's Industrial School.	77	Metal-working ..	1,750	Principally motor engineering and repairs with a little carpentry. This school suffered seriously through the absence of the principal, Father Purris, on active service. He is now back in charge of the school and an improvement is already apparent.
3. Karur Wesleyan Mission Industrial School.	72	Wood-working, metal-working and weaving.	2,800	Principally cabinet-making of good quality. Also a weaving class for the depressed classes as an experiment. A little blacksmithing and simple fitting is being done. Principal, the Rev. C. Dawson, who has had a good practical training for the work is on military duty. Acting Principal, Rev. Hall, is not specially trained for the work. The school may be said to be 'marking time' at present. The financial conditions prevent any great development, but if Mr. Dawson returns as principal, considerable development may be expected when normal conditions prevail.
4. Madras Chengalvaraya Naicker Institute.	265	Do.	6,000	Principally fitting and general mechanical engineering with a little carpentry. Two grades, artisans' and foreman's. Syllabus in upper grade rather ambitious and over-reaching in effect, generally too much attempted and too little of practical value done.
5. Katpadi A.A.M. Industrial School.	42	Wood-working and metal-working.	1,800	Principally cabinet-making of good quality, a little metal work attempted. The school has suffered in the past through changes of management. The present Principal has good sound practical ideas and if left in charge an improvement may be looked for.
6. Tindivanam St. Joseph's Industrial School.	40	Do.	1,800	Principal is a practical minded man with ideas and worth encouragement. Principally cabinet-making of high quality. A very good course of about 8 years. Forty boys and two European teachers. Easily the best organized school we have. A very little metal work being done. This school has recently received a grant of Rs. 8,000 to rebuild the school damaged by a cyclone. A training class for teachers will be attached to the school at an early date (G.O. No. 1439, Home Education), dated 16th November 1917.
7. Madras Anjuman-i-muhammadiyah-Islam.	130	Wood-working and weaving.	5,000	Cabinet-making of rather poor quality. Cheap bazaar workmen employed as teachers. Work greatly hindered by desertions after boys have received very slight training. Hostel badly required. Weaving (carpets) good work done but students fail to obtain such employment after leaving school and drift into jobs as peons, etc.

Number and name of institution.	Number on rolls.	Subjects taught.	Grant awarded.	Remarks.
8. Nazareth Industrial School for boys.	57	Weaving	Rs. 1,250	The wood-working and metal-working departments are at present in the hands of rather poorly qualified instructors. A new Superintendent is being appointed and a suitable scheme of work has been submitted and approved. If the new Superintendent is capable of working up to it, a considerable improvement may be expected. The weaving department has rendered useful service in introducing the fly shuttle loom into the district. Carpentry fair but improving. Weaving of doubtful value.
9. Tanjore St. Francis Xavier's Industrial School.	63	Wood-working and weaving.	1,250	Until recently only the bazaar type of work was done. A new Superintendent has been appointed, the grant being increased to enable the school to pay a reasonable salary for a good man and an improvement may be looked for.
10. Puttur All Saints Boys' Industrial School.	33	Wood-working ..	700	Work a little better than bazaar standard with a rather badly selected class of pupils. This place should improve under treatment. A syllabus has been provided but what is most wanted is a really good practical Superintendent to direct the work.
11. Vellore Anjuman-i-Isha-Athul Hasanath.	32	Do.	350	Formerly well run by a German layman. Closed on declaration of war, reopened by American Mission and closed on last inspection (six boys only in attendance).
12. Navudapet O.E.L.M. Industrial School.	12	Do.	150	Principally mechanical engineering in all stages. Some very good work done but management rather erratic and syllabus not closely followed. Generally too much attempted and too little of practical value accomplished.
13. Mannipattam Andra Jathweya Kalasala.	48	Wood-working and metal-working.	800	Report unsatisfactory. School now closed.
14. Bernampur B.M. Industrial School.	11	Wood-working and weaving.	200	Principally cabinet-making and carving. Very badly run. Some good work done by paid workmen but educationally a mere farce. A large printing establishment attached run as commercial works. The Principal is at present on eighteen months' furlough. When he returns the reorganization of the school will have to be taken up.
15. Velacheri A.A.M. Industrial School.	46	Do.	300	Recently reorganized. With proper syllabus and Government help this school should develop into a fine institution.
16. Trichinopoly St. Joseph's Industrial School.	43	Wood-working and metal-working.	500	Recently reorganized. A fair start made and likely to develop.
17. Kumbakonam St. Mary's Industrial School.	20	Wood-working ..	600	Subject cabinet-making and carpentry. Hitherto run as a commercial factory of motor engineering and repairs. Now being reorganized.
18. Vizagapatam St. Aloysius Industrial School.	18	Metal-working ..	..	Well run and serving as a local centre for a really promising cottage industry.
1. Keelar D.M. Industrial School.	35	Lace	350	Very well conducted but rather self-contained except that it turns out a few teachers for other schools.
2. Kilpauk C.S.M. Industrial School.	79	Lace, embroidery ..	500	The training is on more systematic lines than most of the other lace or embroidery schools and drawing and design are taught as part of the course.
3. Chingleput U.F.C.M. Industrial School.	52	Lace	200	Very well run, but self-contained.
4. Ranipet A.A.M. Women's Industrial Home.	45	Lace, embroidery ..	200	In general satisfactory but self-contained. Likely to improve.
5. Kempstown C.S.M. Industrial School (Trichinopoly).	10	Lace	150	Not so much a school as an attempt to interest the local people in lace making as a cottage industry. As such it is well worth the small grant it receives.
6. Madras St. Joseph's Convent Girls' Industrial School.	52	Lace, embroidery ..	450	Good work turned out specially designed to suit the Indian taste. At present rather self contained but might be developed into a useful local centre.
7. Idayangudi S.P.G. Lace School.	33	Lace	250	Run primarily as a distribution centre for a local cottage trade. Conducted on business lines and very successful.
8. Kadangulam S.P.G. Lace School.	24	Do.	250	Simply an off-shoot of the school at Idayangudi.
9. Kodur O.E.L.M. Lace-making School.	40	Do.	200	This school is really the pupils and teachers of the Gurus school transferred from Kurnool. The work is fair only. The school is altogether self-centred and scarcely worth recognition in its present condition.
10. Karur Wesleyan Mission Lace School.	16	Do.	150	A small school well run but self-contained.

Number and name of institution.	Number on rolls.	Subjects taught.	Grant awarded.	Remarks.
11. Nazareth St. John's Art Industrial School for Girls.	13	Lace	Rs. 100	A small school well run but self-contained.
12. Chombala B.M. Girls' Industrial School.	33	Lace	100	A small school well run but self-contained.
13. Nativyal S.P.G. Weaving school.	4	Weaving	100	An attempt on practical lines to improve the local weaving industry.
14. Erode L.M. Girls' Industrial School.	29	Mat-making, etc. ..	100	An attempt to interest the local agriculturists in cottage industry suitable for rural homes. The scheme might with advantage be copied in a smaller way as a form of Manual Training for girls' schools in rural areas.
15. Bellary St. Joseph's Girls' Industrial School.	78	Dress-making, lace and general needle-work.	450	An attempt to solve the problem of what to do with Eurasian orphan girls. Likely to turn out useful wires and house-keepers but not likely to found any local industry.
16. Palamottiah C.M.S. Industrial School for the Blind.	23	Weaving and mat-making, etc.	500	A special school requiring special treatment. It is rather difficult to separate the industrial department from the educational department in this institution. The institution is developing fast and an expert in subjects for the blind is urgently required to direct the tuition.
17. Madras Dress-making School.	25	Needle-work generally.	500	Similar to that of Bellary but on more trade like lines. Turns out nurses and maids for domestic service but is scarcely likely to have any great industrial effect.
18. A.B.M. Boarding Girls' Industrial School, Ongole.	9	Drawn thread work and lace crocheting.	..	A small school opened to centralize an attempt to found a cottage industry. Well worth encouragement.
19. Government Press schools, Madras (2).	173	Composing and proof-reading.	350	Run on excellent lines but recently deteriorating owing to Mr. Fisher not being able to give them so much personal attention as formerly. Might be abolished in present form and the work undertaken on broader lines at the Government Trades School.
20. Chingleput (Melrosapuram) U.F.C.M. Agricultural school.	19	Do.	50	Hitherto almost a failure but at present being reorganized.
20. Chingleput (Melrosapuram) U.F.C.M. Agricultural school.	9	Agriculture	150	Hitherto almost a failure but at present being reorganized.

Unrecognized schools.

1. Tiruchengode Government Girls' School Weaving Classes.	..	Weaving	..	Under Inspectress of Girls' Schools. Run as a form of Manual Training to interest the weaving caste girls in education. As such successful but not an industrial school in the usual sense of the word.
2. Mannipattam Sri V. Deena Samrakshaka Sangham.	..		..	Inspection postponed as school closed owing to disease.
3. Mangalore St. Antony's Female Industries.	..	Hosiery, lace and embroidery.	..	In a flourishing condition but no literary instruction given and no standard educational of admission adhered to.
4. Mangalore R.C. Boys' Industrial school.	..	Mechanical engineering and carpentry and shoemaking.	..	Do. do.
5. Mangalore B.M. Mechanical Workshop.	..	Mechanical engineering.	..	Run as a commercial workshop but providing an excellent practical training for about 16 apprentices.

II

Letter—from C. A. INNES, Esq., I.C.S., Officer in charge of the Department of Industries.

To—the Secretary to Government, Home (Education) Department.

Dated—Madras, the 9th/12th March 1918.

No.—G.C. 105.

In continuation of my letter G.C. No. 105, dated 30th January 1918, on the subject of technical education, I have the honour to submit, for the information of Government, a copy of a note kindly sent me on the same subject by Sir Clement Simpson.

2. I do not know if in paragraph 7 of the note Sir Clement is referring to me personally. If so, I plead not guilty. As a matter of fact I have devoted a great deal of attention to the subject of industrial education and fully realize its importance.

3. As regards the scheme of education outlined in paragraph 9, I agree that a technological Institution on the lines of the Victoria Technical Institute at Bombay is an ideal to be kept in view. But it has been definitely decided by Government—I think rightly—that it would be premature to establish at present such an institution

in Madras and that the immediate needs of the Presidency can be met sufficiently by sending students to Bombay.

4. As regards industrial schools, Sir Clement apparently takes the view that what is mainly wanted are day and night schools for the general education of workmen and for teaching them some knowledge of English. But he also thinks that operatives should be able to attend the schools to learn a little of the theory of their trade and to practise the use of other tools. I think these ideas are sound and that big employers of factory labour in the mufassal such as cotton spinning and jute mills should be induced as far as possible by Government grants to open night schools for their operatives. It would be easy enough to arrange for literary instruction should firms experience much difficulty in fitting up small workshops where operatives would practise with other tools than they use in their own shops. But it would not be easy to arrange for lectures on theory. What is really wanted is that other big mills and factories in the Presidency should follow the example set by the Buckingham and Carnatic mills in providing educational facilities for their workmen and that Government should aid them to do so. In principle there is no difference between Sir Clement Simpson's views and my own. The Government Trades School is an attempt to provide continuation classes for apprentices and workmen in the various shops in Madras and the preparatory industrial school I have proposed is intended to provide workshops with a better educated class of apprentices than they get at present.

5. Sir Clement also suggests that industrial schools should be made over again to the Director of Public Instruction who should be assisted by a Board of Education. The Board of Education may or may not come as the result of the political reforms now in the air. Theoretically perhaps technical and industrial education belongs rather to the province of the Director of Public Instruction than to that of the Director of Industries. But technical education has been bandied about like a shuttlecock between the Director of Public Instruction and the Director of Industries for the last ten years, and I think it is a pity to reopen the question. Further, though the Director of Industries is not a trained educationalist like the Director of Public Instruction, he has a much smaller department, is more in touch with employers of industrial labour and is more likely to take a direct personal interest in the subject.

ENCLOSURE

Technical Education.

Manufacturers have been urging at various committees and enquiries for some years that the Madras workman should have a chance of improving his position by industrial training.

2. The large industries in Madras can train their own labour no doubt but only in narrow lines.

3. The trained labour is required up-country where men are constantly wanted with a general knowledge that it is extremely difficult to attain in a workshop where a man is earning his living, but which would become obtainable with an institute where workmen could get a chance of learning a little more of the trade on which they are occupied, obtain lessons in machine drawing, and the use of tools other than the particular one they may be tied to in a workshop.

4. Similar industrial schools with evening classes would follow in other parts of the Presidency as the development of industry may dictate.

5. The issue has always got mixed up with higher technical education and very little progress has been made. Opposition has also come from unexpected quarters.

6. The Engineering College appears to fear that its special sphere would be interfered with, how I cannot imagine. The Engineering College is of no use to the industrialist and the equipment of an industrial or mechanics institute in Madras could hardly prejudice the equipment of the costly Engineering College.

7. Another objector has been the Director of Industries who has argued that it is no good training labour for industries that do not exist. Here the inwardness of the opposition would appear to be the desire to spend such money as can be raised by the Director on starting a new industry rather than spending money to train men for existing industries. In my opinion there is ample scope in this Presidency for any labour that can be trained, and that immediate attention should be given to improving the supply of skilled labour.

8. In both these cases the objections raised seem to be partly due to differences of opinion as to the place of industrial instruction in the general scheme of education, and as to the authority that should be in charge of it.

9. It has been endeavoured to find this place in the following rough outline of what might be the ultimate aim in the hope that something may be done at once by commencing with No. 3, that is to say, at the very bottom.

(1) *Technological Institutes of University standing*—

(a) *Admission*.—Only to those with a secondary education (perhaps F.A.'s) on the modern scientific side.

(b) *Course*.—Four to six years leading up to a degree or diploma.

(c) *Administration*.—(i) Internal (educational) management under principal and college council, each main subject being represented on the council.

(ii) General management by committee of nominated representatives, educational and industrial.

(iii) Director of Public Instruction—Government.

(2) *Technological Institutes*—

(a) *Admission*.—Secondary education with school-leaving certificate.

(b) *Course*.—Two to four years leading up to a diploma.

(c) *Administration* as above, but more autocratically governed by its Principal and Director of Public Instruction—Government.

To fill e.g. subordinate places Public Works Department draughtsmen, works foremen in electricity, engineering and textile works. They might also qualify for subordinate places in veterinary hospitals, technical teachers for trade schools and generally prepare themselves for industrial pursuits.

(3) *Industrial schools* in all their forms. This will include day schools and night schools for primary education so far as possible in English. Night schools are a necessity to meet the requirements of those who are at work during the day and have insufficient opportunity of acquiring primary education and some knowledge of English. Operatives in workshops should be able to attend the industrial schools after factory hours to learn a little theory of their trade. A young fellow in a workshop may spend all his time on one tool and learn there nothing else, such should have a chance, if, say, he is a turner in a workshop, of picking up carpentry and blacksmith work in the evening classes of industrial schools, so that he may become an all round man and qualify for work up-country, where all round men are so badly wanted and are well paid.

(a) *Admission*.—First—Half-timers.

Second—Boys employed or unemployed.

Third—Workmen.

(b) *Course*.—Varying according to subjects.

(c) *Administration*.—Special inspectors of industrial schools working under Director of Public Instruction.

(4) *Director of Public Instruction*—Government should be advised by statutory committee of experts whose business it is to advise Government on—

(a) policy to be adopted originally, or at other times when required,

(b) methods to be introduced to carry out that policy. They should be paid as in the Port Trust meetings. It might even be desirable to institute a Board of Education divided into several branches (e.g. Elementary, Secondary, University Technological, Medical, etc.), and have advisory committees in each.

10. The scheme might also be extended so that evening courses in advanced technological subjects are held in (1) Technological Institutes of University standing, and also evening courses of lectures held in (2) Technological Institutes. The evening courses in (No. 1) the Technological Institutes of University standing should co-ordinate as far as is practicable with the scheme, for evening instruction in Technology held in the (No. 2) Technological Institutes, and these evening courses again should co-ordinate so far as is practicable with the evening classes in (3) the industrial schools.

11. It should be possible for an intelligent workman to attend evening classes in (3) the industrial school, and when proficient pass on to the evening courses in (2) the Technological Institute and in exceptional cases to the evening courses held in (1) the Technological Institutes of University standing.

12. Students for admission to (1) the Technological Institutes of University standing, or to (2) the Technological Institutes should hold certificates of satisfactory attendance at the respective lower grade evening instruction classes, failing that satisfactory evidence of adequate preparation.

Order—No. 723, HOME (Education), dated 6th June 1918.

Recorded.

2. Mr. Innes should submit as early as possible his proposals for opening a mechanical engineering school in the Northern Sirkars. His proposals for reorganizing the mechanical engineering section of the Madura Technical Institute have been received and are being examined.

3. The Government accept the view that the technical examinations in mechanical engineering and woodworking subjects should be abolished and that a system of school-leaving certificates should be introduced in their place, but consider that the examinations should be continued for another two years in the interests of those students who are now being trained in accordance with the existing syllabus. Mr. Innes should submit, in consultation with the Commissioner for Government Examinations, detailed proposals for giving effect to the change.

4. The Government resolve to place the Madras Trades School on a permanent footing and to open an industrial preparatory class therein to train intelligent apprentices of a type suitable for subsequent admission into workshops. The detailed proposals promised for the reorganization of the school are awaited. It is understood that the Government Panchama Training school cannot be moved from its present site. Mr. Innes should therefore select some other suitable site for the location of his school.

5. The issue of a Code of Industrial Education will be dropped for the present.

6. Separate orders will issue as regards the appointment of Mr. Fyfe as full-time Inspector of Industrial Schools.

(True extract)

R. RAMACHANDRA RAO,
Secretary to Government.

To the Officer in charge of the Department of Industries.
" Director of Public Instruction.
" Commissioner for Government Examinations.
Copy to the Revenue Department.
" Public (Marine) Department.
Editors' Table (C of I and Order only).

NOTES CONNECTED WITH G.O. No. 723, HOME (EDUCATION),
DATED 6TH JUNE 1918.

[SUBJECT.—*Reorganization of Industrial Education.*]

Previous papers :

G.O. 313, Educational, 12th May 1905	G.O. 1089, Educational, 9th December 1912
" 302 " 20th " 1907	" 3851, Revenue, 30th " "
" 2894, Revenue, 17th October 1908	" 725, Educational, 8th August 1913
" 304, Educational, 20th May 1909	" 798 " 26th " "
" 1025, Revenue, 18th June "	" 1244 " 24th December "
" 3508 " 21st December "	" 780 " 4th July 1914
" 565 " 19th February 1910	" 833 " 16th " "
" 1623 " 17th May "	" 1029 " 1st September "
" 2576 " 5th August "	" 652 " 13th June 1916
" 274, Educational, 12th May 1911	" 1092, Home (Edn.), 17th October "
" 621 " 5th September "	" 1104 " 20th " "
" 28 " 16th January 1912	" 179 W., " 30th January 1917
" 564 " 27th June "	" 104, Home (Edn.), 13th February "
" 647 " 18th July "	" 907 " 31st July "
" 776 " 24th August "	" 1107 " 30th August "
" 845 " 20th September "	" 1439 " 15th November "

HOME (EDUCATION) DEPARTMENT.

*From the Officer in charge of the Department of Industries, dated
the 30th January 1918, No. 105.*

In the year 1912 Mr. Tressler submitted a comprehensive note dealing with the general policy to be pursued in regard to recognition and aid and other matters connected with industrial and technical schools. In G.O. No. 833, Educational, dated the 16th July 1914, the Government directed him to refer his note to a committee of school managers and also to one of representative employers of labour and to submit their recommendations to Government with his remarks and a draft code for industrial schools. He accordingly submitted in 1915 a draft code which was, after careful consideration in the Secretariat, referred to Mr. Couchman. Mr. Couchman considered that Mr. Tressler's Code was faulty in many respects and was not in favour of its adoption without further examination. He accordingly proposed to ask Mr. Fyfe, Instructor in Manual Training for European Schools, to inspect the industrial schools in the Presidency and to prepare a report on them as a basis of discussion as to what policy should be followed in regard to these schools (pages 11 and 12 of notes to G.O. No. 164, dated 13th February 1917). Mr. Innes, who succeeded Mr. Couchman, was also of the opinion that Mr. Fyfe should inspect all the existing schools and that his report should be awaited before deciding what policy should be adopted in respect of them. The Government in D.O. No. 144, dated 8th February 1917, expressed their concurrence in Mr. Innes' view.

2. Mr. Fyfe has accordingly inspected all the industrial schools and submitted a report to Mr. Innes. The latter in forwarding a copy of the report deals at length (paragraphs 1 to 12 of the current letter) with the history of industrial education in Madras and agrees with Mr. Fyfe that it would be premature at present to formulate proposals for a code of industrial education. The report of the Indian Industrial Commission may throw some additional light on the subject. In the circumstances the question of issuing a separate code for industrial schools may be dropped for the present.

3. Mr. Innes however raises certain points for consideration. These are—
 (i) policy to be followed in the matter of industrial education for mechanics (i.e., fitters, turners, moulders, blacksmiths, pattern makers, carpenters, etc.);
 (ii) treatment of existing industrial schools;
 (iii) abolition of Government technical examinations in mechanical engineering and wood-working subjects and the introduction of a school-leaving certificate;
 (iv) placing the Madras Trades school on a permanent basis and the opening of an industrial preparatory class therein;
 (v) appointment of Mr. Fyfe as a whole-time Inspector of Industrial Schools.

4. *Policy to be followed in the matter of industrial education for mechanics.*—Mr. Innes states that in the training of mechanics the following three stages should be recognized:—

- (1) A certain amount of general education calculated to develop those mental qualities of alertness, intelligence and adaptability required in all forms of occupation, which education however should be carefully biased towards an industrial career;
- (2) practical training in a commercial workshop; and
- (3) some form of special education in the shape of continuation or extension classes while the practical training in the workshop is going on.

Mr. Innes considers that the attempt to turn out finished mechanics from industrial schools should be given up and that the aim of the schools rather should be merely to turn out boys who, by reason of the education they have received, ought to be useful apprentices. He suggests the opening of preparatory industrial classes where boys who are twelve or thirteen years old and have a certain minimum of general education would be taught colloquial English (including reading and writing), drawing, workshop arithmetic and a little mathematics, and would also be given manual training for about a period of three years. Where there are a large number of apprentices in training in commercial shops, he recommends the opening of continuation or extension classes for their benefit. Mr. Innes at the same time recognizes the difficulty of enforcing his principles in centres where there are no commercial workshops to which apprentices can be sent. He therefore suggests the opening of a workshop in conjunction with the Madura Technical Institute wherein students can receive practical training, the course being extended to five years. He also proposes to follow a similar course in respect of the mechanical engineering school which the Government propose to open in the Northern Circars.

5. As stated in one of the papers of the United Provinces Government printed as annexure to the notes to G.O. Nos. 3851-52, Revenue, dated the 30th December 1912, the literature on the subject of industrial schools is voluminous, suggestive but infructuous. However, an attempt will be made to set out briefly the opinions expressed from time to time so far as they bear on the specific proposals now under consideration.

6. *Sir E. Buck's report of 1901* (page 24 of the report).—(a) Literary and general education should be entirely separate from technical instruction (an educational officer should preside over the literary education and a technological officer over the technical instruction);

(b) the former should be differentiated to meet the needs of each case;
 (c) only those trades should be taught which are or can be usefully practised in the locality;

(d) only those in which there is *prima facie* prospect of employment.

7. *Resolutions of the Simla Conference of 1901 on Technical Education* (pages 251-52 of the "Papers relating to Technical Education in India, 1886-1904").—

"1. Technical education may be defined as—

(a) the study of the scientific methods and principles underlying the practice of any handicraft, industry or profession;

(b) the application of those methods and principles to the practice of the handicraft industry, or profession in question.

The first is the primary or technological aspect of the subject; the second is its subsequent and practical application.

2. All technical instruction must rest upon the basis of some preliminary education of a simple but practical nature.

3. This preliminary education is better communicated in existing schools and institutions, i.e., as a department of primary or secondary instruction than in technical or industrial schools.

4. It should, as a general rule, include such subjects in the primary grades as freehand drawing, simple handwork and the elementary principles of natural science.

5. Where it is considered necessary or desirable to give this education to artisans in connexion with technical or industrial schools, it should be provided for by special classes attached to them; and a clear differentiation should be made between (a) literary and (b) scientific and technical courses.

23. A survey of the existing industrial schools in India leads to the conclusion that they have been wanting in definiteness both of methods and objects, that there has been no clear differentiation between general and technical studies in them, that they have depended for initiation and support upon the volition of local bodies rather than upon any sustained policy of Local Governments, that they have been insufficiently co-ordinated with particular local industries or trades, and that the impression produced by them either upon industrial development or upon industrial education has been relatively small.

24. The instruction given in such schools should be technical in preference to general, specialized instead of diffuse.

25. The form of industrial school recommended by the Conference for future adoption where practicable, or for encouragement by grants in aid where it already exists, is a local trade or crafts school, directed to the furtherance or development of a local industry which appears to be capable of expansion by the application of superior methods or implements."

In paragraph 5 of their letter No. 501-503, dated the 20th November 1901, the Government of India expressed their general concurrence in the recommendations of the Conference. They also remarked (pages 249-250 of "Papers relating to Technical Education in India, 1886-1904") :—

"The development and organization of industrial schools is, however, the matter connected with practical education that appears at the present time to be of the most urgent importance. The conclusions of the Conference are entirely accepted by the Government of India, and it is only necessary to make a few remarks in respect to them. In the first place, I am to say that the Governor-General in Council attaches great value to the dissociation of technical education from ordinary literary education. The technical or industrial school should be strictly limited to scientific and technical courses. Every endeavour should be made to secure that students, before entering industrial schools, have been properly grounded in the simple forms of education mentioned in the fourth resolution of the Conference on the subject, but it is recognized that it may not always be possible to secure that the student, when he enters, shall already have received

due amount of ordinary education. In order to meet the cases of such peoples and to secure that they shall not, after leaving an industrial school, enter the world without any literary

education whatever, it may be desirable to arrange for their instruction either in night schools or in special classes. But this education should not be conducted in the technical or industrial school itself."

8. *Recommendations of Colonel Oliborn's Committee* (pages 257-261 of "Papers relating to Technical Education in India, 1886-1904").—The main features of the Committee's report are detailed in the resolution of the Government of India No. 31, Educational, dated the 14th January 1904. The Committee condemned the 'class' system as generally inefficient, costly and unsuited to institutions supported out of public funds, and recommended the institution of a system of apprenticeships in workshops. They considered that opportunities should be given to the apprentices as well as to working artisans to attend voluntarily at classes held at night schools out of working hours. Existing industrial schools should either be converted into supervised workshops working for a profit and supplemented by night classes for other instruction or else classified not as industrial schools but as schools of general instruction in which manual training forms part of the curriculum.

The Government of India were unable to accept the views expressed by the Committee, especially as regards its wholesale condemnation of industrial schools (page 258 of "Papers relating to Technical Education in India, 1886-1904"). They pointed out that foreign educational methods showed no tendency to substitute teaching by apprenticeship for teaching in schools but that on the contrary industrial schools had been called into existence in order to supply the defects of the apprentice system which not only fails to give proper technical instruction but also in many cases cannot even provide economically for the complete training of apprentices in

manual dexterity. They also expressed the opinion that systematic instruction in principles is essential to the success of any system of industrial training and that industrial schools should be primarily educational and not commercial enterprises. In great industrial centres they advocated the opening of technical schools similar to the Victoria Jubilee Technical Institute in Bombay. For the encouragement of local handicrafts they suggested the opening in select places of half-time industrial primary and higher primary schools in which instruction in geometrical drawing and designing would form an essential part of the course. At the same time they recognized that the field was open for experiments of different kinds.

9. *Recommendations of the Ootacamund Industrial Conference* (pages 216-217 of "Papers relating to Industrial Conference held at Ootacamund in 1908") :—

"Industrial instruction should arise out of and be developed to suit the needs of some existing industry or an industry started for experimental purposes.

It is desirable that a list should be made of the trades and manufactures in this Presidency which are of sufficient importance to justify the establishment of special industrial schools in relation to them.

The Conference is of opinion that industrial schools should be located in a centre where a connected industry is carried on, and there is no objection to two or more industries being taught in one institution. It is desirable, where an industry has been started for experimental purposes, that industrial classes should exist in connexion with it.

The number of industrial schools in the Presidency should be increased and the status of those already established should be improved.

The primary object to be aimed at by industrial schools should be the improvement of the quality of the work of the hereditary artisan classes. A secondary object will be the instruction of others than these, who may submit themselves to training. Such schools need not necessarily be self-supporting, but the courses of instruction should direct attention to the importance of efficient and economical manufacture and of arriving at the true cost of the work turned out. The success of a school in the matter of grants in aid should be judged of largely by the economy of the outturn, even if such outturn should not contribute appreciably to reducing the cost of the working of the school itself.

In industrial schools it is not objectionable to employ workmen with whom the boys may be associated in the execution of orders. It should be an important function of such schools to provide advanced courses of instruction for craftsmen and artisans who have already learnt their trade in the bazaar or village. No general education class should be attached to these schools, but, as far as possible, only pupils who can read and write their own vernacular fairly well should be admitted. Those who cannot, may be admitted as half-time pupils. The work in them should be more intimately connected with the requirements of the people of the country than has hitherto been the case.

The Conference is of opinion that provision should be made, in the curriculum of studies of all secondary schools for males, for compulsory manual training, including the use of tools during certain hours in the week."

10. *Mr. Chatterton's note on industrial education prepared in 1911* (G.O. No. 274, Educational, dated 12th May 1911).—Industrial training can best be given in the workshop or factory and recourse should be had to industrial schools only when it is impossible to make arrangements for the training of artisans in organized factories. Workshop training should be supplemented by special courses of instruction in a technical school in drawing, elementary arithmetic, mechanism and applied mechanics. For modern industries the apprenticeship system is the best. The promotion of indigenous industries can be brought about by the establishment of industrial schools at suitable centres.

11. *Dr. Travers' views on the development of industrial education* (pages 19-22 of the annexure to Notes to G.O. Nos. 3851-52, Revenue, dated 30th December 1912):—

(i) There are three factors which determine the position of an industry, viz., the mental capacity of the workmen, the efficiency of their tools, etc., and the degree of the organization of the industry itself. Of these factors the first and third dominate the second.

(ii) The first step towards the improvement of an industry is the improvement of factors 1 and 3. Government can only touch upon factor 3 to a limited extent.

(iii) So far as Government is concerned, the preliminary education of the artisan class is the first subject for attention. Such education should be provided by higher elementary or middle schools, of a type which does not yet exist in India. On this subject much information is to be found in the reports of the British Department of Education or in the reports of the American Bureau of Information. The basis of instruction is manual training. Such schools should remain under the Education Department in charge of a special inspector.

(iv) Trades cannot be taught in schools, but in the factory and workshop.

(v) Trade schools dealing with trades and with subjects allied to trades may be established in industrial centres but should be open only to men and boys actually engaged in trades. The museum should be an important part of each school.

(vi) Trade schools and similar institutions should not actually engage in trade, as they can only do so at the expense of legitimate trade.

(vii) Only workmen of some education are likely to benefit by study in trade schools; hence they are not likely to be highly successful till progress has been made in educating the workers."

12. *Classification of industrial and technical schools according to their aims* (paragraph 3 of letter to India, No. 3852, Revenue, dated 30th December 1912):—

(1) *Schools in which the pupils acquire general or professional knowledge, including or even based upon manual or technical training of any kind but without direct regard during the period of training to any commercial consideration.*—Under this class come schools for teaching telegraphy, typewriting, shorthand, music, drawing, gymnastics, and commercial schools and carpentry and manual training classes, etc. These are under the Director of Public Instruction.

(2) *Schools in which the pupils learn to make articles which they may be expected to make in afterlife for a livelihood, i.e., those in which the trade or the commercial element is important from the first.*—Pupils in such schools may also be taught such accomplishments as reading, writing, arithmetic and drawing, if they are necessary or desirable adjuncts to the better making or selling of the things made and if they have not been acquired beforehand. These are under the Director of Industries.

13. *Report of Lieutenant-Colonel Atkinson and Mr. Dawson.*—The report condemns the existing industrial schools intended for the training of mechanics and favours the adoption of the apprenticeship system. To remedy the defects of the system the following special recommendations are made (paragraph 196 on page 85 of the "Report on Technical Instruction by Lieutenant-Colonel Atkinson and Mr. Dawson") :—

"The education of skilled workmen should only be carried up to vernacular reading, writing, sufficient elementary arithmetic for accounts, and sufficient knowledge of drawing to understand a dimensioned sketch.

The most promising method of training skilled workmen is to establish manual training schools for children in big centres and near big workshops; the boys to be apprenticed in workshops from the ages of 12 to 14 years; during the apprenticeship they are to be obliged to attend afternoon classes to complete their literary education and finally to obtain some theoretical knowledge of their work."

The above recommendations are noticed in paragraph 10 of the Government of India's letter No. 274, dated the 23rd March 1917, printed in G.O. No. 1107, Home (Education), dated the 30th August 1917. The following extract from the letter contains the views of the Government of India on the subject :—

"This condemnation of industrial schools does not meet with the complete concurrence of Local Governments, and the Government of India are not themselves entirely convinced that it is applicable to present circumstances in India. At the same time, they would be glad to see further experiments made, when possible, in the direction indicated by the Committee. The question of factory schools has long occupied the attention of the Government of India and is one to which they attach the greatest importance. Proposals have been made for legislation in order to induce employers to provide instruction for children connected with factories, and these proposals have been under the consideration of the Government of India. Dealing for the present with the character of the schools required, they recognize that these schools must for the most part confine themselves to the teaching of the three R's and drawing and that the children for whom they are intended are often already employed. When it is proposed to give manual and vocational training, this training, in order to be efficient, must ordinarily be given through a system of apprenticeship. But, while the apprenticeship system should be pushed as far as possible, having regard to the views of the employers and to the expense entailed, there is no reason why in certain places central vocational classes outside the system of apprenticeship should not be started in addition to existing industrial schools for the children of artisans and also possibly for the theoretical instruction of promising mechanics."

14. *Mr. Tressler's draft Technical Education Code.*—The principal features of the Code and the objections thereto are set out in Mr. Couchman's note on pages 9-12 of notes to G.O. No. 164, Home (Education), dated the 13th February 1917. The Code divided industrial training into two grades: that intended to produce foreman (the craftsman's course) and that intended to produce workmen (the journeyman's course). The education is to be divided into two parts: the 'practice' stage

and the 'workshop' stage. The 'practice' stage is to be of two years' duration and the 'workshop' stage of three years' duration. The aim of the practice stage is to produce 'skill' in the abstract and of the workshop stage to produce knowledge of how to apply skill in practice. Mr. Couchman pointed out that the above proposals were out of touch with the realities both of education and industry and constituted a purely theoretical structure based on no experience. He also expressed the opinion that most of the present industrial schools should be converted into manual training centres (under the charge of the Education Department) open to the boys of all schools in the neighbourhood and that the Department of Industries should concern itself only with part-time or night schools opened for the benefit of working artisans with a view to enable them to rise to higher positions in their respective trades. In the end, the Code was not approved by Government.

15. *Provision for general education in industrial schools.*—The need for making provision for general education in industrial schools has been admitted by Government. Please see paragraph 7 of Mr. Chatterton's letter No. 96, dated the 26th April 1911, printed on page 14 of G.O. No. 647, Educational, dated the 18th July 1912, and also notes on pages 25 to 33 of notes to G.O. No. 164, Home (Education), dated the 13th February 1917.

16. *Summary.*—A study of the above papers appears to lead to the following conclusions:—

(1) industrial schools for mechanics should be started only in centres where a large number of mechanics are employed;

(2) the primary object to be aimed at by such schools is the improvement of the mechanic's skill and the quality of his work by inculcating a knowledge of improved methods and appliances and teaching him the rudimentary principles of his trade;

(3) the practical training should, as far as possible, be undergone in commercial factories or workshops if such are available in the vicinity of the school. In the absence of such facilities, a workshop should be attached to the school for affording the requisite practical instruction;

(4) where the practical training is undergone in commercial workshops, the school need only provide for continuation or extension classes as in the present Madras Trades school;

(5) if necessary, facilities for general education may also be provided in the industrial school with a view to improve the mental capacity of the workmen or their children, care however being taken that the literary education is not overdone so as to create an aversion for manual labour on the part of the workmen.

17. Mr. Innes states that the aim of the industrial schools should be merely to turn out boys who, by reason of the education they have received, ought to be useful apprentices. When there are a large number of apprentices in training in commercial shops, continuation or extension classes should be opened for their benefit. It is submitted that an industrial school should come into existence mainly for the benefit of *working* artisans, that it should first make provision for continuation or extension classes, and that provision for general education and manual training for young boys should be made in the school only if the need for such training is felt in the locality.

* E.g., Colonel Oliborn's Committee, Dr. Travers and Mr. Couchman.

Many authorities* hold that schools intended to develop the general intelligence of boys and to train their hands and eyes should be under the Director of Public Instruction and not under the Director of Industries. In fact all the part-time and night schools for factory employees (including the school in the Buckingham Mills) are now under the Director of Public Instruction (G.O. No. 1039, Educational, dated 9th December 1912). It is the policy of the Government to extend the facilities for manual training in secondary schools and to make the education in primary and secondary schools a preparation for technical education. Recently the Government have approved the opening of two manual training centres in the Madras-i-Azam and the Georgetown Muhammadan secondary school and provision has been made in next year's budget for opening additional centres [G.O. No. 1440, Home (Education), dated 16th November 1917]. No doubt it will take many years before these benefits can reach the classes from which mechanics and carpenters are drawn and no objection need therefore be taken to Mr. Innes' proposal

to open a preparatory industrial class in the Madras Trades school. But it has to be recognized that such facilities are now necessary because the educational courses in the primary and secondary schools of the Presidency are defective. When the state of education in these schools is brought to the level of that obtaining in England, there will be no need for special preparatory classes in industrial schools, and pupils from primary and secondary schools can straightaway be admitted into industrial schools or workshops (please see description on page 32 of annexure to notes to G.O. Nos. 3851-52, Revenue, dated 30th December 1912). It is therefore submitted that in laying down a policy it is hardly proper to state that the principal aim of an industrial school should be the turning out of useful apprentices for admission into commercial workshops. As already stated, such schools must aim at the improvement of working men, but there is no objection to their turning out useful boy apprentices also. Probably Mr. Innes does not propose to confine instruction to the preparatory classes or to do away with the *trade instruction* now given in industrial schools, but only wishes to make it clear that the boys now trained in industrial schools cannot consider themselves fully qualified mechanics and that they can become so only after undergoing practical training in a workshop. Anyhow the position has to be made clearer and a further reference to Mr. Innes appears necessary. Subject to the above remarks there appears to be no objection to the acceptance of the proposals made by Mr. Innes in paragraphs 13 and 18 of his letter.

No recent information is available as regards the organization of industrial schools in other provinces. The particulars given on pages 18 and 19 of Sir E. Buck's report must now be out of date. From the description of the Lucknow school given on page 33 of the notes printed as annexure to G.O. Nos. 3851-52, Revenue, dated 30th December 1912, it appears to possess a junior class corresponding more or less to the preparatory industrial school suggested by Mr. Innes.

18. *Treatment of existing industrial schools.*—As pointed out by Mr. Innes, many harsh things have been said about the existing industrial schools which are mostly under mission management and maintained for the benefit of orphans. Following the suggestions of the Government of India in their resolution No. 31, dated 14th January 1904 (pages 257-261 of "Papers relating to Technical Education in India, 1886-1904") and letter No. 274, dated 23rd March 1917, printed in G.O. No. 1107, dated 30th August 1917, Mr. Innes proposes to improve the schools and not to do away with them altogether. As measures of reform he suggests the following:—

- (1) a certain minimum standard of general education should be prescribed for admission into all schools;
- (2) schools should work up to an approved syllabus;
- (3) schools which are supervised by trained European superintendents should, in the matter of grants, be treated more liberally; and
- (4) efforts should be made to improve the subordinate staff.

The crying need at present is the provision of duly qualified superintendents and instructors for the schools. It is doubtful whether it will be possible to insist on a minimum general educational qualification for admission, but a trial may be made. In paragraph 16 of their resolution No. 31, dated 14th January 1904, the Government of India made the following further suggestions (page 261 of "Papers relating to Technical Education in India, 1886-1904") :—

"The organization of the existing schools should however be carefully reviewed in the light of the criticisms which have been passed upon them. Their object being to produce intelligent artisans, the extent to which they attain that object should be scrutinized; inappropriate trades should be discarded and specialized instruction should be given in one or a few industries; the course of instruction in the school workshop should be supplemented by appropriate lessons in class, which should be differentiated according to the particular industry for which the pupil is intended. Where it is found that the passed pupils do not follow the trades that they have been taught, the remedy will be to take the necessary measures to restrict admission to the pupils who are likely to follow the industry, to direct the instruction specially and closely to a preparation for it, and to study all means of providing an easy passage from the school to the workshop."

It is submitted that Mr. Innes' suggestions may be approved. His attention may also be drawn to the further suggestions of the Government of India reproduced above and he may be asked to give effect to them as far as possible.

19. *Abolition of the Government technical examinations in mechanical engineering and wood-working subjects and the introduction of a school-leaving certificate.*—A similar suggestion was pressed on Government by Mr. Cotton in his letter printed in G.O. No. 2576, Revenue, dated the 5th August 1910. The committee of school managers which met in 1915 to discuss the code of regulations for industrial schools also passed a resolution that in their view the present technical examinations did not serve as a satisfactory test of the capacity of a pupil in industrial subjects and that special examinations in such subjects to be conducted by practical men should be arranged for [paragraph 4 on page 20 of G.O. No. 164, Home (Education), dated 13th February 1917]. Attention is also solicited to paragraph 11 on page 15 of the papers relating to the Industrial Conference held at Ootacamund in 1908 from which it will be seen that several of the leading firms and employers then consulted stated that they attached no importance to the possession of certificates of having passed technical examinations. Mr. Innes also adduces, in paragraph 14 of his letter, additional grounds to show that the certificates granted as a result of these examinations, far from doing any good to the recipients, do actually work out their ruin. In these circumstances Mr. Innes proposes to discontinue the examination so far as mechanical engineering and wood-working subjects are concerned. In its place he proposes to give every boy on leaving the school a school-leaving certificate certifying as to his conduct and as to the syllabus according to which he was instructed. The candidate would then be registered in the office of the Director of Industries as a candidate for employment as an apprentice. After two years' service in a workshop it is proposed to make an endorsement to that effect on the boy's certificate. There seems no objection to accepting the proposal generally. Mr. Innes promises to send detailed proposals in regard to the abolition of the examinations. The Commissioner for Government Examinations may perhaps be consulted when the proposals are received.

20. *Placing the Madras Trades school on a permanent basis and the opening of a preparatory industrial class therein.*—Mr. Innes proposes to open an industrial preparatory school on a comparatively small scale with about twenty boys of twelve or thirteen years of age and to teach them to read and write colloquial English, drawing, workshop arithmetic, etc. Manual training would be a feature of the school. In the circumstances explained in paragraph 16 the proposal may generally be approved. When detailed proposals are received, they may be considered in consultation with Financial.

He also proposes to put the Madras Trades school on a permanent basis. It was started at first with only two classes, but the number has now increased to eight, and Mr. Fyfe recommends the opening of more classes during the next session—vide paragraphs 35–36 of his report. The school is now held in two rented buildings in Georgetown (vide G.O. No. 1046, dated 3rd October 1916, and paragraph 4 of G.O. No. 997, dated 31st July 1917). The report called for in paragraph 6 of G.O. No. 997, Home (Education), dated 31st July 1917, has not yet been received, but it is stated that the school has proved a success and is attracting the right class of students. Mr. Innes considers that the school should have its own permanent buildings which could also accommodate the preparatory industrial school proposed to be started newly. He suggests that the Government Panchama training school grounds would be an ideal site for the purpose since it is close to the foundries of Madras. The Director of Public Instruction may be requested u.o. to state whether in the circumstances he would surrender the site and buildings to the Department of Industries.

21. *Appointment of Mr. Fyfe as full-time Inspector of Industrial Schools.*—For the reasons explained in paragraph 19 of his letter Mr. Innes recommends the appointment of Mr. Fyfe as whole-time Inspector of Industrial Schools with effect from the 1st April next. In his despatch No. 110, Revenue, dated 10th October 1913, on page 5 of G.O. No. 368, Educational, dated 1st April 1914, the Secretary of State sanctioned the appointment of an Inspector of Industrial Schools in this Presidency on a pay of Rs. 600—50—1,000. The appointment was to be on probation for two years during which period the officer would be allowed to draw a fixed pay Rs. 600. After confirmation, the progressive pay would take effect. It is not clear from the correspondence whether the post is a permanent one or whether the fresh sanction of the Secretary of State will be necessary to its continuance after the expiry of two years.

On this point the Accountant-General may be consulted. The India Office which promised to recruit a suitable officer for the post was not successful in securing one (page 2 of G.O. No. 821, dated 30th July 1915). Consequently in G.O. No. 1221, Home (Education), dated 21st November 1916, Mr. Fyfe, Instructor in Manual Training for European Schools, was appointed temporarily to inspect the industrial schools without prejudice to his regular duties and was granted an allowance of Rs. 150 per mensem in addition to his pay as Manual Training Instructor. The above temporary arrangement was sanctioned as Mr. Couchman in his demi-official, dated 20th June 1916, stated that there was not sufficient work for a full-time inspector (page 22 of G.O. No. 1221, dated 21st November 1916). Mr. Innes, however, now considers that, for the proper development of the Madras Trades school and the Madura Technical Institute and the systematic inspection of aided schools, the services of a full-time officer are necessary. Mr. Fyfe's qualifications and the terms of his engagement as Manual Training Instructor will be found detailed in the papers printed in G.O. No. 225, Educational, dated 26th February 1915. Mr. Fyfe came out on a five years' engagement in February 1915, and he is now in receipt of a salary of Rs. 460 per mensem in the scale of Rs. 400—20—500 per mensem. His qualifications are not the same as those prescribed in paragraph 2 of the India Office notice on page 6 of the notes to G.O. No. 1284, dated 14th November 1914, but from his reports it appears that he is an officer of sound judgment and has also a practical turn of mind. Before approving Mr. Innes' proposals, the Director of Public Instruction may perhaps be asked whether he can spare the services of Mr. Fyfe and, if so, from what date.

22. It is submitted that the notes may be forwarded u.o. to Mr. Innes for Yes. To Mr. C. A. Innes, I.C.S. (u.o.) remarks with reference to paragraph 17 L.D.S.—20–3–18. supra. He may be asked to return the papers through the Director of Public

Instruction to enable the latter officer to offer his remarks on the suggestions in regard to the abolition of the Government technical examinations in mechanical engineering and wood-working subjects and the appointment of Mr. Fyfe as full-time Inspector of Industrial Schools.

N.K.—27–2–18.

I fear I have kept this case a long time but it requires a good deal of study. Mr. Innes' watchword is "clear ideas and a policy" and he and Mr. Fyfe have given us these very fully and practically. The long office-note above is, I think, very good and leaves very little to be said. Mr. Innes has indicated lines and it is merely now a question of whether or not Government is to accept them.

2. With regard to the existing schools, our axiom seems to be "technical education must be developed in relation to the industrial needs and conditions of the country." It is complained that many of these schools have grown up through the enterprise of the local missionary whose primary object was probably to thwart the notorious proclivities of Satan in regard to idle hands. They are thus scattered all over the country and bear no real relation to industrial centres and industrial needs. As Mr. Innes says, the logical course would be to say to these schools "conform or do without your grant." He proposes, however, rather to accept them as they are and endeavour to improve them. I think we should formulate as our policy an intention to scrap by degrees such of the schools as are found to be of little help: otherwise they will remain as permanent excrescences on our system. It is to be noted, however, from glancing through the list of schools attached to Mr. Fyfe's report, that most of these outlying schools are of the cottage industry type and the grants they receive are generally small. Of the other class, Nos. 10 and 13 seem to be the worst offenders in the way of lying away from industrial areas: this is also against St. Joseph's, Tindivanam, which has otherwise an excellent record. No. 7, though in Madras itself, doesn't seem to be earning its big grant of Rs. 5,000.

3. I do not quite appreciate the difficulty raised by the office in paragraph 17 of the note above. Mr. Innes' meaning seems to me clear enough. He is not giving us detailed proposals, only outlines.

4. We may agree—

(1) to drop all questions of formulating a code meantime,

(2) to the principle of dropping the Government technical examinations. When Mr. Innes' detailed proposals come in, we may decide on them after consulting the Commissioner for Examinations.

5. As to the Madras Trades school, we may await detailed proposals. Financial will have to be consulted; as also the Director of Public Instruction as to the required buildings.

6. We may agree to Mr. Innes' proposals as to Mr. Fyfe. The Accountant-General will have to be consulted as to the sanction of the Secretary of State and the Director of Public Instruction may be asked u.o. if he can spare Mr. Fyfe. I suggest that this be taken out of this file and treated as a separate question.

Very well.

L.D.S.—20-3-18.

7. Mr. Innes' attention may be invited to the Government of India's resolution, quoted on page 7 ante.

8. All Mr. Innes wants meantime is that Government should "give general approval to the views expressed." This, I think, we may certainly do.

C. H. BROWN—17-3-18.

Mr. C. A. Innes, I.C.S. (u.o.) to be kindly returned through the Director of Public Instruction.

L. D. SWAMIKANNU—20-3-18.

OFFICE OF THE DIRECTOR OF INDUSTRIES.

The office-note deals with industrial education generally. My letter was confined to the training of mechanics; a much narrower subject.

At any rate that was its intention.

P.R.—24-5-18.

2. I have nothing to say as regards paragraph 17 of the office-note (with which I agree generally) except that it criticises a principle which I never intended to lay down. I do not ask Government baldly to say that the proper function of an industrial school is to turn out useful apprentices. I criticised existing mechanical engineering schools on the ground that they profess to turn out finished workmen, whereas in my view an industrial school by itself cannot turn out a finished mechanic. The meaning I intended to convey was that these existing schools would fulfil their proper function in a well-thought scheme of industrial education if they were converted into manual training centres or vocational schools. Paragraphs 13 and 14 of my letter taken together make my meaning sufficiently clear.

3. I am quite prepared to admit that my proposed preparatory industrial school falls really within the province of the Director of Public Instruction, but there is room for us both. If my proposals for a permanent trades school are approved, we shall have a building which will be used mainly for morning and evening classes. It would be economy to use it in the day time for a preparatory industrial school on the lines suggested, and the school will be an useful experiment.

4. The views of the Government of India quoted in paragraph 18 of the office-note are not very helpful in the present connexion. They apply to industrial schools generally, whereas I am dealing, as I have already pointed out, only with the training of mechanics. It is of course easy to say that admission should be restricted to pupils who are likely to follow the industry taught, but in practice it is almost impossible to enforce this rule.

5. We want clear ideas as a guide to our future policy, but I don't think that it

I most heartily agree.

P.R.—24-5-18.

is advisable for Government on my letter to bind themselves to any hard and fast policy. In the first place my views are admittedly only provisional, and in the second the subject of industrial education of

the Madras Presidency does not admit of any rigid policy. This will be sufficiently clear from my own proposals for, as I admitted in paragraph 18 of my letter, my proposals for the Madura Technical Institute and the Cocanada Mechanical Engineering School are hardly consistent with the principles I have laid down as regards the training of mechanics. Again, in respect of the existing mechanical engineering schools a rigid policy is not possible. It is important to recognize the limitations of these schools, but at the same time we cannot in my opinion either scrap them or consciously aim at scrapping them. We must make the best of them and with careful guidance they may develop into useful institutions each on its own lines. The Katpadi school, for instance, is already moving in the direction of taking up a definite industry and converting its school into a workshop run on commercial lines. The Tindivanam school is already turning out excellent carpenters and may specialize in the direction of becoming a training institution for teachers. The St. Aloysius school at Vizagapatam is again developing entirely on its own lines.

C. A. INNES—3-4-18.

OFFICE OF THE DIRECTOR OF PUBLIC INSTRUCTION.

However true it may be that a pass in a technical examination is not of much use, the fact remains that people have been encouraged to aspire to such passes for the last thirty years or so. The summary abolition of any of the examinations will therefore give rise to complaint. I shall not oppose the eventual discontinuance of the examinations in

Surely an examination is not an end in itself.

P.R.—24-5-18.

mechanical engineering and wood-work, and the sooner they cease to govern the work in industrial schools the better, but I think they will have to be conducted on a limited scale for two or three years to give people who have been trained for them, but have failed, some more chances

Two years should suffice.

P.R.—24-5-18.

of passing. Mr. Innes will no doubt make suitable proposals in this direction. As regards Mr. Fyfe I am anxious not to be obstructive. But there is a strange irony in the situation that demands of me his surrender. Whatever arrangement is made, I request (1) that it shall place no obstacle in the way of a man being recruited to take his place; (2) that until he is suitably replaced, he shall continue to exercise general supervision over the European schools centre as far as that may prove necessary; [He has suggested the employment of a man to carry on carpentry classes there and thought that Mr. Porrett could supervise the work. This may be possible, but owing to his military duties I cannot be sure of Mr. Porrett being available.] (3) that he should give us all the help necessary in carrying out the arrangements for establishing the manual training centres for which there is provision in the current budget. I do not see how I can give up the Panchama school buildings and compound, because except at very considerable expense, which may just as well be incurred by the trades school, I don't see where else I am to house the school.

J. H. STONE—11-4-18.

HOME (EDUCATION) DEPARTMENT.

II

From the Officer in charge of the Department of Industries, dated 9th March 1918, G.C. No. 105.

Mr. Innes submits a note on technical and industrial education written by Sir C. B. Simpson. No immediate action seems to be necessary on it. Mr. Innes' proposals in regard to the general policy to be pursued in the development of industrial education have been referred back to him for further remarks. When the file

returns from him the present letter in the current file may be added to it before it goes in circulation to the Honourable Member. In the meanwhile this may, it is submitted, lie over.

C.H.B.—23-3-18.

S.K.—21-3-18.

T.K.—22-3-18.

III

Please see note on pages 10 and 11 ante. Mr. Innes explains that he does not ask Government to lay down any rigid policy in regard to the development of industrial education in this Presidency and that in his letter he has only indicated the general lines on which institutions for mechanics and carpenters should be developed. The Government may, it is submitted, generally approve his proposals. For the reasons explained by Mr. Innes, it does not appear desirable to enforce in the case of private schools the conditions laid down in the Government of India's resolution, quoted on page 7 ante.

2. The position in regard to the other questions dealt with in these notes is briefly noticed below :—

(1) *Abolition of the Government technical examinations in mechanical engineering and wood-working subjects.*—Please see paragraph 19 of the office-note on page 8 ante. The Director of Public Instruction has no objection to the abolition of these examinations, but considers that they should be continued on a limited scale for two or three years to give people who have been trained for them, but have failed, some more chances of passing. There appears to be no objection to the proposal. Mr. Innes may be asked to introduce suitable modifications in his suggested scheme for the award of school-leaving certificates.

(2) *Placing the Madras Trades school on a permanent basis and the opening of an industrial preparatory class.*—Please see paragraph 20 of the office-note on page 8 ante. Mr. Innes will in due course submit proposals for the permanent retention of the Madras Trades school. He suggested that the school should be located on the site now occupied by the Government Panchama Training school, Madras. The Director of Public Instruction is not in favour of relinquishing the site. Mr. Innes may therefore be asked to select some other suitable site in that locality.

(3) *Appointment of Mr. Fyfe as full-time Inspector of Industrial schools.*—This question is dealt with in the linked file.

3. This case together with the linked file may be sent u.o. to Mr. Innes for further expression of his views.

S.K.—18-4-18.

N.K.—22-4-18.

Mr. Innes' views are required on the two points raised by the Director of Public Instruction—the gradual abolition of the technical examinations and the site for the Trades school.

C. H. BROWN—22-4-18.

R. RAMACHANDRA RAO—23-4-18.

OFFICE OF THE DIRECTOR OF INDUSTRIES.

As regards the first point, all we can do, I think, is to give notice that the examinations in mechanical engineering and wood-working subjects will be discontinued after a stated period, say, three years. This expedient is the only one possible in my opinion, and it will safeguard the interests of students now being trained for the examinations.

2. As regards a site, enquiries will be made.

C. A. INNES—30-4-18.

HOME (EDUCATION) DEPARTMENT.

Mr. Innes' proposal in regard to the Government technical examinations in mechanical engineering and wood-working subjects may, it is submitted, be approved.

2. A draft order is submitted for approval. It may be sent to the Financial Department for acceptance.

S.K.—3-5-18.

N.K.—7-5-18.

C. H. BROWN—8-5-18.

R. RAMACHANDRA RAO—9-5-18.

FINANCIAL DEPARTMENT.

The foregoing notes relate to the laying down of a definite policy in regard to the lines on which the mechanical branch of industrial education should be conducted, and to certain proposals made in the direction of carrying out this policy. Briefly

Quite sound.

L.D.—17-5-18.

stated, Mr. Innes' view is that mechanics cannot be produced in industrial schools, but only in workshops, mills, etc., and that mechanical engineering schools should provide general education and set out to produce useful apprentices who are likely to be taken by workshops and mills.

2. The definite proposals with which Financial is concerned are—

(1) Opening of the mechanical engineering section in the Madura Technical Institute from 1st July 1918. Similar proposal was generally approved in paragraph 5 of G.O. No. 725, Educational, dated 8th August 1918.

(2) Opening of a mechanical engineering school in the Northern Circars. This is a proposal often urged by the non-official members of the Legislative Council—cf. page 31 of Budget Debate pamphlet, 1917.

(3) The establishment of the Madras Trades school on a permanent basis. [This school is at present temporary—vide G.O. No. 997, Home (Education), dated 31st July 1917.]

(4) Opening of an industrial preparatory class and continuation classes in the Madras Trades school to train intelligent apprentices for subsequent admission to private workshops.

(5) The selection of a site and the construction of buildings for the Trades school, Madras. [This involves non-recurring expenditure.]

These proposals are all very general and there is not even a very rough idea of the extra cost they involve. The proposals need not be objected to in Financial.

3. Mr. Innes has also proposed as part of his policy in regard to mechanical branch of industrial education that more liberal grants should be given to aided industrial schools which are supervised by trained European superintendents. He will no doubt come up later with definite proposals on the subject.

4. The draft order may be accepted in Financial.

T.A.S.—15-5-18.

These papers make interesting reading but there is nothing very definite from the Financial point of view.

Detailed proposals will come up later and meanwhile Financial may accept the draft.

L. E. KERSHAW—16-5-18.

The Honourable Member (Financial) should see the Government Order as it is a commitment in regard to future policy.

L. DAVIDSON—17-5-18.

HOME (EDUCATION) DEPARTMENT.

For orders as to circulation.

S.K.—18-5-18.

N.K.—20-5-18.

C.H.B.—22-5-18.

R.R.—23-5-18.

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3. Mr. Innes however raises certain points for consideration. These are—

- (i) policy to be followed in the matter of industrial education for mechanics (i.e., fitters, turners, moulders, blacksmiths, pattern makers, carpenters, etc.);
- (ii) treatment of existing industrial schools;
- (iii) abolition of Government technical examinations in mechanical engineering and wood-working subjects and the introduction of a school-leaving certificate;
- (iv) placing the Madras Trades school on a permanent basis and the opening of an industrial preparatory class therein;
- (v) appointment of Mr. Fyfe as a whole-time Inspector of Industrial Schools.

4. *Policy to be followed in the matter of industrial education for mechanics.*—Mr. Innes states that in the training of mechanics the following three stages should be recognized:—

- (1) A certain amount of general education calculated to develop those mental qualities of alertness, intelligence and adaptability required in all forms of occupation, which education however should be carefully biased towards an industrial career;
- (2) practical training in a commercial workshop; and
- (3) some form of special education in the shape of continuation or extension classes while the practical training in the workshop is going on.

Mr. Innes considers that the attempt to turn out finished mechanics from industrial schools should be given up and that the aim of the schools rather should be merely to turn out boys who, by reason of the education they have received, ought to be useful apprentices. He suggests the opening of preparatory industrial classes where boys who are twelve or thirteen years old and have a certain minimum of general education would be taught colloquial English (including reading and writing), drawing, workshop arithmetic and a little mathematics, and would also be given manual training for about a period of three years. Where there are a large number of apprentices in training in commercial shops, he recommends the opening of continuation or extension classes for their benefit. Mr. Innes at the same time recognizes the difficulty of enforcing his principles in centres where there are no commercial workshops to which apprentices can be sent. He therefore suggests the opening of a workshop in conjunction with the Madura Technical Institute wherein students can receive practical training, the course being extended to five years. He also proposes to follow a similar course in respect of the mechanical engineering school which the Government propose to open in the Northern Circars.

5. As stated in one of the papers of the United Provinces Government printed as annexure to the notes to G.O. Nos. 3351-52, Revenue, dated the 30th December 1912, the literature on the subject of industrial schools is voluminous, suggestive and infructuous. However, an attempt will be made to set out briefly the opinions expressed from time to time so far as they bear on the specific proposals now under consideration.

6. *Sir E. Buck's report of 1901* (page 24 of the report)—(a) Literary and general education should be entirely separate from technical instruction (an educational officer should preside over the literary education and a technological officer over the technical instruction);

- (b) the former should be differentiated to meet the needs of each case;
- (c) only those trades should be taught which are or can be usefully practised in the locality;
- (d) only those in which there is prima facie prospect of employment.

7. *Resolutions of the Simla Conference of 1901 on Technical Education* (pages 251-52 of the "Papers relating to Technical Education in India, 1856-1904")—

"1. Technical education may be defined as—

- (a) the study of the scientific methods and principles underlying the practice of any handicraft, industry or profession;

(b) the application of those methods and principles to the practice of the handicraft, industry, or profession in question.

The first is the primary or technological aspect of the subject; the second is its subsequent and practical application.

2. All technical instruction must rest upon the basis of some preliminary education of a simple but practical nature.

3. This preliminary education is better communicated in existing schools and institutions, i.e., as a department of primary or secondary instruction than in technical or industrial schools.

4. It should, as a general rule, include such subjects in the primary grades as freehand drawing, simple handwork and the elementary principles of natural science.

5. Where it is considered necessary or desirable to give this education to artisans in connexion with technical or industrial schools, it should be provided for by special classes attached to them; and a clear differentiation should be made between (a) literary and (b) scientific and technical courses.

23. A survey of the existing industrial schools in India leads to the conclusion that they have been wanting in definiteness both of methods and objects, that there has been no clear differentiation between general and technical studies in them, that they have depended for initiation and support upon the volition of local bodies rather than upon any sustained policy of local Governments, that they have been insufficiently co-ordinated with particular local industries or trades, and that the impression produced by them either upon industrial development or upon industrial education has been relatively small.

24. The instruction given in such schools should be technical in preference to general, specialized instead of diffuse.

25. The form of industrial school recommended by the Conference for future adoption where practicable, or for encouragement by grants-in-aid where it already exists, is a local trade or crafts school, directed to the furtherance or development of a local industry which appears to be capable of expansion by the application of superior methods or implements."

In paragraph 5 of their letter No. 501-503, dated the 20th November 1901, the Government of India expressed their general concurrence in the recommendations of the Conference. They also remarked (pages 249-250 of "Papers relating to Technical Education in India, 1886-1904"):-

"The development and organization of industrial schools is, however, the matter connected with practical education that appears at the present time to be of the most urgent importance. The conclusions of the Conference are entirely accepted by the Government of India, and it is only necessary to make a few remarks in respect to them. In the first place, I am to say that the Governor-General in Council attaches great value to the dissociation of technical education from ordinary literary education. The technical or industrial school should be strictly limited to scientific and technical courses. Every endeavour should be made to secure that students, before entering industrial schools, have been properly grounded in the simple forms of education mentioned in the fourth resolution of the Conference on the subject, but it is recognized that it may not always be possible to secure that the student, when he enters, shall already have received

due amount of ordinary education. In order to meet the cases of such *people* and to secure that they shall not, after leaving an industrial school, enter the world without any literary

education whatever, it may be desirable to arrange for their instruction either in night schools or in special classes. But this education should not be conducted in the technical or industrial school itself."

8. *Recommendations of Colonel Clibborn's Committee* (pages 257-261 of "Papers relating to Technical Education in India, 1886-1904").—The main features of the Committee's report are detailed in the resolution of the Government of India No. 51, Educational, dated the 14th January 1904. The Committee condemned the 'class' system as generally inefficient, costly and unsuited to institutions supported out of public funds, and recommended the institution of a system of apprenticeships in workshops. They considered that opportunities should be given to the apprentices as well as to working artisans to attend voluntarily at classes held at night schools out of working hours. Existing industrial schools should either be converted into supervised workshops working for a profit and supplemented by night classes for other instruction or else classified not as industrial schools but as schools of general instruction in which manual training forms part of the curriculum.

The Government of India were unable to accept the views expressed by the Committee, especially as regards its wholesale condemnation of industrial schools (page 258 of "Papers relating to Technical Education in India, 1886—1904"). They pointed out that foreign educational methods showed no tendency to substitute teaching by apprenticeship for teaching in schools but that on the contrary industrial schools had been called into existence in order to supply the defects of the apprentice system which not only fails to give proper technical instruction but also in many cases cannot even provide economically for the complete training of apprentices in manual dexterity. They also expressed the opinion that systematic instruction in principles is essential to the success of any system of industrial training and that industrial schools should be primarily educational and not commercial enterprises. In great industrial centres they advocated the opening of technical schools similar to the Victoria Jubilee Technical Institute in Bombay. For the encouragement of local handicrafts they suggested the opening in select places of half-time industrial primary and higher primary schools in which instruction in geometrical drawing and designing would form an essential part of the course. At the same time they recognized that the field was open for experiments of different kinds.

9. *Recommendations of the Ootacamund Industrial Conference* (pages 216—217 of "Papers relating to Industrial Conference held at Ootacamund in 1908") :—

"Industrial instruction should arise out of and be developed to suit the needs of some existing industry or an industry started for experimental purposes.

It is desirable that a list should be made of the trades and manufactures in this Presidency which are of sufficient importance to justify the establishment of special industrial schools in relation to them.

The Conference is of opinion that industrial schools should be located in a centre where a connected industry is carried on, and there is no objection to two or more industries being taught in one institution. It is desirable, where an industry has been started for experimental purposes, that industrial classes should exist in connexion with it.

The number of industrial schools in the Presidency should be increased and the status of those already established should be improved.

The primary object to be aimed at by industrial schools should be the improvement of the quality of the work of the hereditary artisan classes. A secondary object will be the instruction of others than these, who may submit themselves to training. Such schools need not necessarily be self-supporting, but the courses of instruction should direct attention to the importance of efficient and economical manufacture and of arriving at the true cost of the work turned out. The success of a school in the matter of grants-in-aid should be judged of largely by the economy of the outturn, even if such outturn should not contribute appreciably to reducing the cost of the working of the school itself.

In industrial schools it is not objectionable to employ workmen with whom the boys may be associated in the execution of orders. It should be an important function of such schools to provide advanced courses of instruction for craftsmen and artisans who have already learnt their trade in the bazaar or village. No general education class should be attached to these schools, but, as far as possible, only pupils who can read and write their own vernacular fairly well should be admitted. Those who cannot, may be admitted as half-time pupils. The work in them should be more intimately connected with the requirements of the people of the country than has hitherto been the case.

The Conference is of opinion that provision should be made, in the curriculum of studies of all secondary schools for males, for compulsory manual training, including the use of tools during certain hours in the week.

10. *Mr. Chatterton's note on industrial education prepared in 1911* (G.O. No. 274, Educational, dated 12th May 1911).—Industrial training can best be given in the workshop or factory and recourse should be had to industrial schools only when it is impossible to make arrangements for the training of artisans in organized factories. Workshop training should be supplemented by special courses of instruction in a technical school in drawing, elementary arithmetic, mechanism and applied mechanics. For modern industries the apprenticeship system is the best. The promotion of indigenous industries can be brought about by the establishment of industrial schools at suitable centres.

11. *Dr. Travers' views on the development of industrial education* (pages 19—22 of the annexure to Notes to G.O. Nos. 3851—52, Revenue, dated 30th December 1912):—

"(i) There are three factors which determine the position of an industry, viz., the mental capacity of the workmen, the efficiency of their tools, etc., and the degree of the organization of the industry itself. Of these factors the first and third dominate the second.

- (ii) The first step towards the improvement of an industry is the improvement of factors 1 and 3. Government can only touch upon factor 3 to a limited extent.
- (iii) So far as Government is concerned, the preliminary education of the artisan class is the first subject for attention. Such education should be provided by higher elementary or middle schools, of a type which does not yet exist in India. On this subject much information is to be found in the reports of the British Department of Education or in the reports of the American Bureau of Information. The basis of instruction is manual training. Such schools should remain under the Education Department in charge of a special inspector.
- (iv) Trades cannot be taught in schools, but in the factory and workshop.
- (v) Trade schools dealing with trades and with subjects allied to trades may be established in industrial centres but should be open only to men and boys actually engaged in trades. The museum should be an important part of each school.
- (vi) Trade schools and similar institutions should not actually engage in trade, as they can only do so at the expense of legitimate trade.
- (vii) Only workmen of some education are likely to benefit by study in trade schools; hence they are not likely to be highly successful till progress has been made in educating the workers."

12. *Classification of industrial and technical schools according to their aims* (paragraph 3 of letter to India, No. 3852, Revenue, dated 30th December 1912).—

(1) Schools in which the pupils acquire general or professional knowledge, including or even based upon manual or technical training of any kind but without direct regard during the period of training to any commercial consideration. Under this class come schools for teaching telegraphy, typewriting, shorthand, music, drawing, gymnastics, and commercial schools and carpentry and manual training classes, etc. These are under the Director of Public Instruction.

(2) Schools in which the pupils learn to make articles which they may be expected to make in afterlife for a livelihood, i.e., those in which the trade or the commercial element is important from the first. Pupils in such schools may also be taught such accomplishments as reading, writing, arithmetic and drawing, if they are necessary or desirable adjuncts to the better making or selling of the things made and if they have not been acquired beforehand. These are under the Director of Industries.

13. *Report of Lieutenant-Colonel Atkinson and Mr. Dawson.*—The report condemns the existing industrial schools intended for the training of mechanics and favours the adoption of the apprenticeship system. To remedy the defects of the system the following special recommendations are made (paragraph 196 on page 85 of the "Report on Technical Instruction by Lieutenant-Colonel Atkinson and Mr. Dawson"):

"The education of skilled workmen should only be carried up to vernacular reading, writing, sufficient elementary arithmetic for accounts, and sufficient knowledge of drawing to understand a dimensioned sketch.

The most promising method of training skilled workmen is to establish manual training schools for children in big centres and near big workshops; the boys to be apprenticed in workshops from the ages of 12 to 14 years; during the apprenticeship they are to be obliged to attend afternoon classes to complete their literary education and finally to obtain some theoretical knowledge of their work."

The above recommendations are noticed in paragraph 10 of the Government of India's letter No. 274, dated the 23rd March 1917, printed in G.O. No. 1107, Home (Education), dated the 30th August 1917. The following extract from the letter contains the views of the Government of India on the subject:

"This condemnation of industrial schools does not meet with the complete concurrence of Local Governments, and the Government of India are not themselves entirely convinced that it is applicable to present circumstances in India. At the same time, they would be glad to see further experiments made, when possible, in the direction indicated by the Committee. The question of factory schools has long occupied the attention of the Government of India and is one to which they attach the greatest importance. Proposals have been made for legislation in order to induce employers to provide instruction for children connected with factories, and these proposals have been under the consideration of the Government of India. Dealing for the present with the character of the schools required, they recognize that these schools must for the most part confine themselves to the teaching of the three R's and drawing and that the children for whom they are intended are often already employed. When it is proposed to give manual

and vocational training, this training, in order to be efficient, must ordinarily be given through a system of apprenticeship. But, while the apprenticeship system should be pushed as far as possible, having regard to the views of the employers and to the expense entailed, there is no reason why in certain places central vocational classes outside the system of apprenticeship should not be started in addition to existing industrial schools for the children of artisans and also possibly for the theoretical instruction of promising mechanics."

14. *Mr. Tressler's draft Technical Education Code.*—The principal features of the Code and the objections thereto are set out in Mr. Couchman's note on pages 9–12 of notes to G.O. No. 164, HOME (EDUCATION), dated the 13th February 1917. The Code divided industrial training into two grades: that intended to produce foreman (the craftsman's course) and that intended to produce workmen (the journeyman's course). The education is to be divided into two parts: the 'practice' stage and the 'workshop' stage. The 'practice' stage is to be of two years' duration and the 'workshop' stage of three years' duration. The aim of the practice stage is to produce 'skill' in the abstract and of the workshop stage to produce knowledge of how to apply skill in practice. Mr. Couchman pointed out that the above proposals were out of touch with the realities both of education and industry and constituted a purely theoretical structure based on no experience. He also expressed the opinion that most of the present industrial schools should be converted into manual training centres (under the charge of the Education Department) open to the boys of all schools in the neighbourhood and that the Department of Industries should concern itself only with part-time or night schools opened for the benefit of working artisans with a view to enable them to rise to higher positions in their respective trades. In the end, the Code was not approved by Government.

15. *Provision for general education in industrial schools.*—The need for making provision for general education in industrial schools has been admitted by Government. Please see paragraph 7 of Mr. Chatterton's letter No. 96, dated the 26th April 1911, printed on page 14 of G.O. No. 647, Educational, dated the 18th July 1912, and also notes on pages 25 to 33 of notes to G.O. No. 164, HOME (EDUCATION), dated the 13th February 1917.

16. *Summary.*—A study of the above papers appears to lead to the following conclusions:—

(1) industrial schools for mechanics should be started only in centres where a large number of mechanics are employed;

(2) the primary object to be aimed at by such schools is the improvement of the mechanic's skill and the quality of his work by inculcating a knowledge of improved methods and appliances and teaching him the rudimentary principles of his trade;

(3) the practical training should, as far as possible, be undergone in commercial factories or workshops if such are available in the vicinity of the school. In the absence of such facilities, a workshop should be attached to the school for affording the requisite practical instruction;

(4) where the practical training is undergone in commercial workshops, the school need only provide for continuation or extension classes as in the present Madras Trades school;

(5) if necessary, facilities for general education may also be provided in the industrial school with a view to improve the mental capacity of the workmen or their children, care however being taken that the literary education is not overdone so as to create an aversion for manual labour on the part of workmen.

17. Mr. Innes states that the aim of the industrial schools should be merely to turn out boys who, by reason of the education they have received, ought to be useful apprentices. When there are a large number of apprentices in training in commercial shops, continuation or extension classes should be opened for their benefit. It is submitted that an industrial school should come into existence mainly for the benefit of working artisans, that it should first make provision for continuation or extension classes, and that provision for general education and manual training for young boys

should be made in the school only if the need for such training is felt in the locality.

* E.g., Colonel Clibborn's Committee, Dr. Travers and Mr. Couchman. Many authorities* hold that schools intended to develop the general intelligence of boys and to train their hands and eyes should be under the Director of Public Instruction and not under the Director of Industries. In fact all the part-time and night schools for factory employees (including the school in the Buckingham Mills) are now under the Director of Public Instruction (G.O. No. 1089, Educational, dated 9th December 1912). It is the policy of the Government to extend the facilities for manual training in secondary schools and to make the education in primary and secondary schools a preparation for technical education. Recently the Government have approved the opening of two manual training centres in the Madras-i-Azam and the Georgetown Muhammadan secondary school and provision has been made in next year's budget for opening additional centres [G.O. No. 1440, Home (Education), dated 16th November 1917]. No doubt it will take many years before these benefits can reach the classes from which mechanics and carpenters are drawn and no objection need therefore be taken to Mr. Innes' proposal to open a preparatory industrial class in the Madras Trades school. But it has to be recognized that such facilities are now necessary because the educational courses in the primary and secondary schools of the Presidency are defective. When the state of education in these schools is brought to the level of that obtaining in England, there will be no need for special preparatory classes in industrial schools, and pupils from primary and secondary schools can straightaway be admitted into industrial schools or workshops (please see description on page 32 of annexure to notes to G.O. Nos. 3851-52, Revenue, dated 30th December 1912). It is therefore submitted that in laying down a policy it is hardly proper to state that the principal aim of an industrial school should be the turning out of useful apprentices for admission into commercial workshops. As already stated, such schools must aim at the improvement of working men, but there is no objection to their turning out useful boy apprentices also. Probably Mr. Innes does not propose to confine instruction to the preparatory classes or to do away with the *trade instruction* now given in industrial schools, but only wishes to make it clear that the boys now trained in industrial schools cannot consider themselves fully qualified mechanics and that they can become so only after undergoing practical training in a workshop. Anyhow the position has to be made clearer and a further reference to Mr. Innes appears necessary. Subject to the above remarks there appears to be no objection to the acceptance of the proposals made by Mr. Innes in paragraphs 13 and 18 of his letter.

No recent information is available as regards the organization of industrial schools in other provinces. The particulars given on pages 18 and 19 of Sir E. Buck's report must now be out of date. From the description of the Lucknow school given on page 33 of the notes printed as annexure to G.O. Nos. 3851-52, Revenue, dated 30th December 1912, it appears to possess a junior class corresponding more or less to the preparatory industrial school suggested by Mr. Innes.

18. *Treatment of existing industrial schools.*—As pointed out by Mr. Innes, many harsh things have been said about the existing industrial schools which are mostly under mission management and maintained for the benefit of orphans. Following the suggestions of the Government of India in their resolution No. 31, dated 14th January 1904 and letter No. 274, dated 23rd March 1917, printed in G.O. No. 1107, dated 30th August 1917, Mr. Innes proposes to improve the schools and not to do away with them altogether (pages 257-261 of "papers relating to Technical Education in India, 1886-1904"). As measures of reform he suggests the following:—

- (1) a certain minimum standard of general education should be prescribed for admission into all schools;
- (2) schools should work up to an approved syllabus;
- (3) schools which are supervised by trained European superintendents should, in the matter of grants, be treated more liberally; and
- (4) efforts should be made to improve the subordinate staff.

The crying need at present is the provision of duly qualified superintendents and instructors for the schools. It is doubtful whether it will be possible to insist on a minimum general educational qualification for admission, but a trial may be made. In paragraph 16 of their resolution No. 31, dated 14th January 1904, the Government of India made the following further suggestions (page 261 of "Papers relating to Technical Education in India, 1886-1904") :—

"The organization of the existing schools should however be carefully reviewed in the light of the criticisms which have been passed upon them. Their object being to produce intelligent artisans, the extent to which they attain that object should be scrutinized; inappropriate trades should be discarded and specialized instruction should be given in one or a few industries; the course of instruction in the school workshop should be supplemented by appropriate lessons in class, which should be differentiated according to the particular industry for which the pupil is intended. Where it is found that the passed pupils do not follow the trades that they have been taught, the remedy will be to take the necessary measures to restrict admission to the pupils who are likely to follow the industry, to direct the instruction specially and closely to a preparation for it, and to study all means of providing an easy passage from the school to the workshop." It is submitted that Mr. Innes' suggestions may be approved. His attention may also be drawn to the further suggestions of the Government of India reproduced above and he may be asked to give effect to them as far as possible.

19. *Abolition of the Government technical examinations in mechanical engineering and wood-working subjects and the introduction of a school-leaving certificate.*—A similar suggestion was pressed on Government by Mr. Cotton in his letter printed in G.O. No. 2576, Revenue, dated the 5th August 1910. The committee of school managers which met in 1915 to discuss the code of regulations for industrial schools also passed a resolution that in their view the present technical examinations did not serve as a satisfactory test of the capacity of a pupil in industrial subjects and that special examinations in such subjects to be conducted by practical men should be arranged for (paragraph 4 on page 20 of G.O. No. 164, Home (Education), dated 13th February 1917). Attention is also solicited to paragraph 11 on page 15 of the papers relating to the Industrial Conference held at Ootacamund in 1908 from which it will be seen that several of the leading firms and employers then consulted stated that they attached no importance to the possession of certificates of having passed technical examinations. Mr. Innes also adduces in paragraph 14 on page 11, *current file*, additional grounds to show that the certificates granted as a result of these examinations, far from doing any good to the recipients, do actually work out their ruin. In these circumstances Mr. Innes proposes to discontinue the examination so far as mechanical engineering and wood-working subjects are concerned. In its place he proposes to give every boy on leaving the school a school-leaving certificate certifying as to his conduct and as to the syllabus according to which he was instructed. The candidate would then be registered in the office of the Director of Industries as a candidate for employment as an apprentice. After two years' service in a workshop it is proposed to make an endorsement to that effect on the boy's certificate. There seems no objection to accepting the proposal generally. Mr. Innes promises to send detailed proposals in regard to the abolition of the examinations. The Commissioner for Government Examinations may perhaps be consulted when the proposals are received.

20. *Placing the Madras Trades school on a permanent basis and the opening of a preparatory industrial class therein.*—Mr. Innes proposes to open an industrial preparatory school on a comparatively small scale with about twenty boys of twelve or thirteen years of age and to teach them to read and write colloquial English, drawing, workshop arithmetic, etc. Manual training would be a feature of the school. In the circumstances explained in paragraph 16 the proposal may generally be approved. When detailed proposals are received, they may be considered in consultation with Financial.

He also proposes to put the Madras Trades school on a permanent basis. It was started at first with only two classes, but the number has now increased to eight, and Mr. Fyfe recommends the opening of more classes during the next session—vide paragraphs 35-36 of his report. The school is now held in two rented buildings in

Georgetown (vide G.O. No. 1046, dated 3rd October 1916, and paragraph 4 of G.O. No. 997, dated 31st July 1917). The report called for in paragraph 6 of G.O. No. 997, Home (Education), dated 31st July 1917, has not yet been received, but it is stated that the school has proved a success and is attracting the right class of students. Mr. Innes considers that the school should have its own permanent buildings which could also accommodate the preparatory industrial school proposed to be started newly. He suggests that the Government Panchama training school grounds would be an ideal site for the purpose since it is close to the foundries of Madras. The Director of Public Instruction may be requested u.o. to state whether in the circumstances he would surrender the site and buildings to the Department of Industries.

21. *Appointment of Mr. Fyfe as full-time inspector of industrial schools.*—For the reasons explained in paragraph 19 of his letter Mr. Innes recommends the appointment of Mr. Fyfe as whole-time inspector of industrial schools with effect from the 1st April next. In his despatch No. 110, Revenue, dated 10th October 1913, on page 5 of G.O. No. 368, Educational, dated 1st April 1914, the Secretary of State sanctioned the appointment of an inspector of industrial schools in this Presidency on a pay of Rs. 600—50—1,000. The appointment was to be on probation for two years during which period the officer would be allowed to draw a fixed pay Rs. 600. After confirmation, the progressive pay would take effect. It is not clear from the correspondence whether the post is a permanent one or whether the fresh sanction of the Secretary of State will be necessary to its continuance after the expiry of two years. On this point the Accountant-General may be consulted. India Office which promised to recruit a suitable officer for the post was not successful in securing one (page 2 of G.O. No. 821, dated 30th July 1915). Consequently in G.O. No. 1221, Home (Education), dated 21st November 1916, Mr. Fyfe, Instructor in Manual Training for European Schools, was appointed temporarily to inspect industrial schools without prejudice to his regular duties and was granted an allowance of Rs. 150 per mensem in addition to his pay as Manual Training Instructor. The temporary arrangement was sanctioned as Mr. Couchman in his demi-official, dated 20th June 1916, stated that there was not sufficient work for a full-time inspector (page 22 of G.O. No. 1221, dated 21st November 1916). Mr. Innes, however, now considers that, for the proper development of the Madras Trades school and the Madura Technical Institute and the systematic inspection of aided schools, the services of a full-time officer are necessary. Mr. Fyfe's qualifications and the terms of his engagement as Manual Training Instructor will be found detailed in the papers printed in G.O. No. 225, Educational, dated 26th February 1915. Mr. Fyfe came out on a five years' engagement in February 1915, and he is now in receipt of a salary of Rs. 460 per mensem in the scale of Rs. 400—20—500 per mensem. His qualifications are not the same as those prescribed in paragraph 2 of the India Office notice on page 6 of the notes to G.O. No. 1234, dated 14th November 1914, but from his reports it appears that he is an officer of sound judgment and has also a practical turn of mind. Before approving Mr. Innes' proposals, the Director of Public Instruction may perhaps be asked whether he can spare the services of Mr. Fyfe and, if so, from what date.

22. It is submitted that the notes may be forwarded u.o. to Mr. Innes for Yes. To Mr. C. A. Innes, I.C.S. (u.o.) remarks with reference to paragraph 17 L.D.S.—20-3-18. supra. He may be asked to return the papers through the Director of Public

Instruction to enable the latter officer to offer his remarks on the suggestions in regard to the abolition of the Government technical examinations in mechanical engineering and wood-working subjects and the appointment of Mr. Fyfe as full-time inspector of industrial schools.

N.K.—27-2-18.

I fear I have kept this case a long time but it requires a good deal of study. Mr. Innes' watchword is "clear ideas and a policy" and he and Mr. Fyfe have given us these very fully and practically. The long office-note above is, I think, very good and leaves very little to be said. Mr. Innes has indicated lines and it is merely now a question of whether or not Government is to accept them.

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2. With regard to the existing schools, our axiom seems to be "technical education must be developed in relation to the industrial needs and conditions of the country." It is complained that many of these schools have grown up through the enterprise of the local missionary whose primary object was probably to thwart the notorious proclivities of Satan in regard to idle hands. They are thus scattered all over the country and bear no real relation to industrial centres and industrial needs. As Mr. Innes says, the logical course would be to say to these schools "conform or do without your grant." He proposes, however, rather to accept them as they are and endeavour to improve them. I think we should formulate as our policy an intention

See also Mr. Fyfe's report, paragraphs 3 and 24.

to scrap by degrees such of the schools as are found to be of little help: otherwise

they will remain as permanent excrecences on our system. It is to be noted, however, from glancing through the list of schools attached to Mr. Fyfe's report, that most of these outlying schools are of the cottage industry type and the grants they receive are generally small. Of the other class, Nos. 10 and 13 seem to be the worst offenders in the way of lying away from industrial areas: this is also against St. Joseph's, Tindivanam, which has otherwise an excellent record. No. 7, though in Madras itself, doesn't seem to be earning its big grant of Rs. 5,000.

3. I do not quite appreciate the difficulty raised by the office in paragraph 17 of the note above. Mr. Innes' meaning seems to me clear enough. He is not giving us detailed proposals, only outlines.

4. We may agree—

(1) to drop all questions of formulating a code meantime.

(2) to the principle of dropping the Government technical examinations.

When Mr. Innes' detailed proposals come in, we may decide on them after consulting the Commissioner for Examinations.

5. As to the Madras Trades school, we may await detailed proposals. Financial will have to be consulted; as also the Director of Public Instruction as to the required buildings.

6. We may agree to Mr. Innes' proposals as to Mr. Fyfe. The Accountant-General will have to be consulted as to the sanction of the Secretary of State and the Director of Public Instruction may be

Very well.

L.D.S.—20-3-18.

asked u.o. if he can spare Mr. Fyfe. I suggest that this be taken out of this file and treated as a separate question.

7. Mr. Innes' attention may be invited to the Government of India's resolution quoted on page 8 ante.

8. All Mr. Innes wants meantime is that Government should "give general approval to the views expressed." This, I think, we may certainly do.

C. H. BROWN—17-3-18.

Mr. C. A. Innes, I.C.S. (u.o.) to be kindly returned through the Director of Public Instruction (pro).

L. D. SWAMIKANNU—20-3-18.

OFFICE OF THE DIRECTOR OF INDUSTRIES.

The office-note deals with industrial education generally. My letter was confined to the training of mechanics, a much narrower subject.

At any rate that was its intention.

P.R.—24-5-18.

2. I have nothing to say as regards paragraph 17 of the office-note (with which I agree generally) except that it criticises a principle which I never intended to lay down. I do not ask Government badly to say that the proper function of an industrial school is to turn out useful apprentices. I criticised existing mechanical

engineering schools on the ground that they profess to turn out finished workmen, whereas in my view an industrial school by itself cannot turn out a finished mechanic. The meaning I intended to convey was that these existing schools would fulfil their proper function in a well-thought scheme of industrial education if they were converted into manual training centres or vocational schools. Paragraphs 13 and 14 of my letter taken together make my meaning sufficiently clear.

3. I am quite prepared to admit that my proposed preparatory industrial school falls really within the province of the Director of Public Instruction, but there is room for us both. If my proposals for a permanent trades school are approved, we shall have a building which will be used mainly for morning and evening classes. It would be economy to use it in the day time for a preparatory industrial school on the lines suggested, and the school will be an useful experiment.

4. The views of the Government of India quoted in paragraph 13 of the office-note are not very helpful in the present connexion. They apply to industrial schools generally, whereas I am dealing, as I have already pointed out, only with the training of mechanics. It is of course easy to say that admission should be restricted to pupils who are likely to follow the industry taught, but in practice it is almost impossible to enforce this rule.

5. We want clear ideas as a guide to our future policy, but I don't think that it

I most heartily agree.

P.R.—24-5-18.

is advisable for Government on my letter to bind themselves to any hard and fast policy. In the first place my views are

admittedly only provisional, and in the second the subject of industrial education of the Madras Presidency does not admit of any rigid policy. This will be sufficiently clear from my own proposals for, as I admitted in paragraph 13 of my letter, my proposals for the Madura Technical Institute and the Cocanada Mechanical Engineering School are hardly consistent with the principles I have laid down as regards the training of mechanics. Again, in respect of the existing mechanical engineering schools a rigid policy is not possible. It is important to recognize the limitations of these schools, but at the same time we cannot in my opinion either scrap them or consciously aim at scrapping them. We must make the best of them and with careful guidance they may develop into useful institutions each on its own lines. The Katpadi school, for instance, is already moving in the direction of taking up a definite industry and converting its school into a workshop run on commercial lines. The Tindivanam school is already turning out excellent carpenters and may specialize in the direction of becoming a training institution for teachers. The St. Aloysius school at Vizagapatam is again developing entirely on its own lines.

C. A. INNES—3-4-18.

OFFICE OF THE DIRECTOR OF PUBLIC INSTRUCTION.

However true it may be that a pass in a technical examination is not of much use, the fact remains that people have been encouraged to aspire to such passes for the last thirty years or so. The

Surely an examination is not an end in itself.

P.R.—24-5-18.

summary abolition of any of the examinations will therefore give rise to complaint. I shall not oppose the eventual discontinuance of the examinations in

mechanical engineering and wood-work, and the sooner they cease to govern the work in industrial schools the better, but I think they will have to be conducted on a

Two years should suffice.

P.R.—24-5-18.

limited scale for two or three years to give people who have been trained for them, but have failed, some more chances

of passing. Mr. Innes will no doubt make suitable proposals in this direction. As regards Mr. Fyfe I am anxious not to be obstructive. But there is a strange irony in the situation that demands of me his surrender. Whatever arrangement is made, I request (1) that it shall place no obstacle in the way of a man being recruited to take his place; (2) that until he is suitably replaced, he shall continue to exercise

general supervision over the European schools centre as far as that may prove necessary; [He has suggested the employment of a man to carry on carpentry classes there and thought that Mr. Porrett could supervise the work. This may be possible, but owing to his military duties I cannot be sure of Mr. Porrett being available.] (3) that he should give us all the help necessary in carrying out the arrangements for establishing the manual training centres for which there is provision in the current budget. I do not see how I can give up the Panchama school buildings and compound, because except at very considerable expense, which may just as well be incurred by the trades school, I don't see where else I am to house the school.

J. H. STONE—11-4-18.

HOME (EDUCATION) DEPARTMENT.

II

From the Officer in charge of the Department of Industry, dated 9th March 1918, G.C. No. 105.

Mr. Innes submits a note on technical and industrial education written by Sir C. B. Simpson. No immediate action seems to be necessary on it. Mr. Innes' proposals in regard to the general policy to be pursued in the development of industrial education have been referred back to him for further remarks. When the file returns from him the present letter in the current file may be added to it before it goes in circulation to the Honourable Member. In the meanwhile this may, it is submitted, lie over.

C.H.B.—23-3-18.

S.K.—21-3-18.

T.K.—22-3-18.

III

Please see note on pages 22 to 23 ante. Mr. Innes explains that he does not ask Government to lay down any rigid policy in regard to the development of industrial education in this Presidency and that in his letter in the current file he has only indicated the general lines on which institutions for mechanics and carpenters should be developed. The Government may, it is submitted, generally approve his proposals. For the reasons explained by Mr. Innes, it does not appear desirable to enforce in the case of private schools the conditions laid down in the Government of India's resolution quoted on page 18 ante.

2. The position in regard to the other questions dealt with in these notes is briefly noticed below:—

(1) Abolition of the Government technical examinations in mechanical engineering and wood-working subjects.—Please see paragraph 19 of the office-note on pages 19 and 20 ante. The Director of Public Instruction has no objection to the abolition of these examinations, but considers that they should be continued on a limited scale for two or three years to give people who have been trained for them, but have failed, some more chances of passing. There appears to be no objection to the proposal. Mr. Innes may be asked to introduce suitable modifications in his suggested scheme for the award of school-leaving certificates.

(2) Placing the Madras Trades school on a permanent basis and the opening of an industrial preparatory class.—Please see paragraph 20 of the office-note on pages 20 and 21 ante. Mr. Innes will in due course submit proposals for the permanent retention of the Madras Trades school. He suggested that the school should be located on the site now occupied by the Government Panchama Training school, Madras. The Director of Public Instruction is not in favour of relinquishing the site. Mr. Innes may therefore be asked to select some other suitable site in that locality.

(3) Appointment of Mr. Effe as full-time Inspector of Industrial schools.—This question is dealt with in the linked file.

3. This case together with the linked file may be sent u.o. to Mr. Innes for further expression of his views.

S.K.—18-4-18.

N.K.—22-4-18.

Mr. Innes' views are required on the two points raised by the Director of Public Instruction—the gradual abolition of the technical examinations and the site for the Trades school.

C. H. BROWN—22-4-18.
R. RAMACHANDRA RAO—23-4-18.

OFFICE OF THE DIRECTOR OF INDUSTRIES.

As regards the first point, all we can do, I think, is to give notice that the examinations in mechanical engineering and wood-working subjects will be discontinued after a stated period, say, three years. This expedient is the only one possible in my opinion, and it will safeguard the interests of students now being trained for the examinations.

2. As regards a site, enquiries will be made.

C. A. INNES—30-4-18.

HOME (EDUCATION) DEPARTMENT.

Mr. Innes' proposal in regard to the Government technical examinations in mechanical engineering and wood-working subjects may, it is submitted, be approved.

2. A draft order is submitted for approval. It may be sent to the Financial Department for acceptance.

S.K.—3-5-18.
N.K.—7-5-18.

C. H. BROWN—3-5-18.
R. RAMACHANDRA RAO—9-5-18.

FINANCIAL DEPARTMENT.

The foregoing notes relate to the laying down of a definite policy in regard to the lines on which the mechanical branch of industrial education should be conducted, and to certain proposals made in the direction of carrying out this policy. Briefly

Quite sound.

L.D.—17-5-18.

stated, Mr. Innes' view is that mechanics cannot be produced in industrial schools, but only in workshops, mills, etc., and

that mechanical engineering schools should provide general education and set out to produce useful apprentices who are likely to be taken by workshops and mills.

2. The definite proposals with which Financial is concerned are—

(1) Opening of the mechanical engineering section in the Madura Technical Institute from 1st July 1918. Similar proposal was generally approved in paragraph 5 of G.O. No. 725, Educational, dated 8th August 1913.

(2) Opening of a mechanical engineering school in the Northern Circars. This is a proposal often urged by the non-official members of the Legislative Council—cf. page 31 of Budget Debate Pamphlet, 1917.

(3) The establishment of the Madras Trades school on a permanent basis. [This school is at present temporary—vide G.O. No. 997, Home (Education), dated 31st July 1917.]

(4) Opening of an industrial preparatory class and continuation classes in the Madras Trades school to train intelligent apprentices for subsequent admission to private workshops—~~page 15, current file.~~

(5) The selection of a site and the construction of buildings for the Trades school, Madras. [This involves non-recurring expenditure.]

These proposals are all very general and there is not even a very rough idea of the extra cost they involve. The proposals need not be objected to in Financial.

3. Mr. Innes has also proposed as part of his policy in regard to mechanical branch of industrial education that more liberal grants should be given to aided industrial schools which are supervised by trained European superintendents. He will no doubt come up later with definite proposals on the subject.

4. The draft order may be accepted in Financial.

T.A.S.—15-5-18.

These papers make interesting reading but there is nothing very definite from the Financial point of view.

Detailed proposals will come up later and meanwhile Financial may accept the draft.

L. E. KERSHAW—16-5-18.

14 NOTES to G.O. No. 723, HOME (EDUCATION), 6TH JUNE 1918
The Honourable Member (Financial) should see the Government Order as it is a commitment in regard to future policy.

L. DAVIDSON—17-5-18.

HOME (EDUCATION) DEPARTMENT.
For orders as to circulation.

S.K.—18-5-18.
N.K.—20-5-18.

C. H. BROWN—22-5-18.
R. RAMACHANDRA RAO—23-5-18.

I have curtailed the draft order. Let me have a clean copy of it please. I shall then pass it on to my Hon'ble Colleague Sir Alexander Cardew.

P. R. AJAGOPALA ACHARIYAR—24-5-18.
Please type.

R.R.—27-5-18.

A clean copy of the draft is submitted.
2. Mr. Innes' proposals regarding the organization of the mechanical engineering section of the Madura Technical Institute have since been received. The portion enclosed in brackets in paragraph 2 of the draft may therefore be omitted.

S.K.—27-5-18.
N.K.—28-5-18.

C.H.B.—28-5-18.
R.R.—29-5-18.

I may mention for my Honourable Colleague's information that I have gone through this case with a great deal of care and, in view of the fact that we shall soon have the Report of the Industries Commission, where the question of industrial schools will no doubt be dealt with, it seems to me inadvisable that the Government should now commit themselves to any pronouncement in regard to industrial education generally or even in regard to that portion of it which deals with the training of mechanics. The draft order confines itself to the two specific matters which have now to be disposed of, viz., the abolition of the technical examinations in mechanical engineering and wood-working and making the Madras Trades school permanent. Detailed proposals are called for from Mr. Innes in regard to both these things, and he is also asked to expedite his proposals for opening a mechanical engineering school in the Northern Circars, a matter which, as my Honourable Colleague is aware, has been pending for a long time. The proposals sent up by Mr. Innes for re-organizing the mechanical engineering section of the Madura Technical Institute are being examined

Note.

R.R.—1-6-18.

and the Home Secretary will circulate that file to my Honourable Colleague as well to myself. The issue of a code of industrial education may well lie over. In regard to the proposal to appoint Mr. Fyfe as a full-time inspecting officer of industrial schools, I reserve judgment till the file comes up.

P. R. AJAGOPALA ACHARIYAR—30-5-18.

I accept the draft but should it not be laid on the Editors' Table?

A. G. C[ARDEW]—31-5-18.

There appears to be no objection to placing Mr. Innes' letter and the order on Editor's Table. Mr. Fyfe's report contains some caustic comments on the existing mission industrial schools. It does not therefore appear to be desirable to publish it.

S.K.—5-6-18.
N.K.—5-6-18.

May this be done?

C.H.B.—6-6-18.

I do not think that even Mr. Innes' report may be published. So far as the Editors' Table is concerned, it is enough if the Government Order alone be placed on it.

R.R.—6-6-18.

[G.O. No. 723, Home (Education), dated 6th June 1918.]

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