

Government of Madras

HOME DEPARTMENT (EDUCATION)

G.O. No. 997, 31st July 1917

Trades School

Approving the proposals submitted by the Officer in charge of the Department of Industries
for the opening of classes in the Madras — in the current year.

INDEXED

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Government of Madras

HOME DEPARTMENT (EDUCATION)

G.O. No. 997, 31st July 1917

Trades School

Approving the proposals submitted by the Officer in charge of the Department of Industries for the opening of classes in the Madras — in the current year.

Read—the following papers :—

1

Letter—from C. A. Ixnes, Esq., I.C.S., Director of Industries.

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

Dated—Madras, the 9th June 1917.

No.—G. Cur. 116.

In my letter G. Cur. No. 124, dated the 18th May 1917, I submitted a report on the working of the Government Trades School in the session 1916-17. I have now the honour to submit my proposals for the school in the cold weather of 1917-18.

2. *Mechanical engineering and plumbing.*—So far, as will be seen from the report referred to, classes have been conducted in the school in elementary mechanical engineering and elementary plumbing. 12 out of 17 students have been passed out of the former class by Mr. Coats and 11 out of 19 out of the latter by Mr. Madeley. It is proposed therefore in the ensuing cold weather to hold two classes in each subject—a second year course for students who have passed out of the elementary class, and a first year's course for new students or students who wish to repeat last year's course. Draft syllabuses are attached. Those for the elementary course have been revised in the light of the experience already gained. In consultation with the lecturers, it has been decided that in future more time must be given to practical work, and it is proposed that each course should consist of 20 meetings of two hours' duration and 20 meetings of one hour's duration.

3. *Machine drawing.*—Mr. Fyfe and the lecturers also report that a special machine-drawing class would be very useful to the best students of the mechanical engineering and plumbing classes and also to many overseers and foremen who have not as yet attended the school. It is proposed therefore to open a machine-drawing class. It will be held once a week for 20 weeks and will last for two hours.

4. *Electric wiring class.*—In January last, Sir Clement Simpson brought to my notice the great need for instituting some sort of scheme for certificating electric wiremen in Madras. The question of licensing electric wiring contractors has frequently been raised. The Madras Electric Supply Corporation, Limited, asked the President of the Corporation of Madras to move in the matter in September 1914, and in the course of its letter remarked : "At present any man who has the slightest mechanical knowledge and a few crude tools, can call himself an electric wireman, and by quoting low rates, get plenty of work. The result is, houses are wired in a faulty manner, and under the trying weather conditions here, short circuits and leakages of current soon begin to manifest themselves." Mr. Greenwood, the Electric Inspector to Government, also brought the matter to the notice of the Chief Engineer and suggested that a system of certificating wiremen after examination should be introduced. He referred to "the indifferent wiremen available in this part of India" and pointed out that "the results of bad workmanship are annoyance to the

consumer by frequent failure of his light, occasional small burn-outs which in the majority of cases are not serious but which in a wooden building might result in a serious fire, and disputes with the Supply Corporation over the meter readings." The matter was referred to the Electrical Adviser to the Government of India who agreed that "a great deal of very bad wiring work is carried out and that it is a source of danger to the premises concerned." The suggested system of licensing however was not approved, but I understand that the suggestion has again been made by the recent conference of Electric Inspectors and Electrical Engineers at Calcutta. Whether it is eventually approved or not, it is obvious that there is much scope for improving the qualifications of electric wiremen in Madras, and I agree with Sir Clement Simpson that a system of certificating wiremen would be a useful step in advance. Indeed some such system would appear to be a necessary preliminary to any system of licensing. Accordingly I wrote to Mr. Greenwood, the Electric Inspector to Government, to Mr. J. F. Jones of the Electric Supply Corporation, Limited, and to Mr. Worthington Wilson, General Manager of Oakes & Co., Ltd., suggesting that a class in electric wiring might usefully be opened at the Government Trades School. Mr. Greenwood and Oakes & Co., Ltd., have expressed their entire agreement with the proposal, and though Mr. Jones' answer is not so definite, I understand that he also views it favourably. I propose therefore that a class in electric wiring should be opened on the lines of the mechanical engineering and plumbing classes. The course, will consist of 40 lectures, half of them devoted to practical work and lasting each for two hours, and the other 20 lasting for one hour each and being devoted to theoretical instruction. The class will be open to workmen and apprentices of the electrical engineering firms in Madras and to wiring contractors. The syllabus will be arranged in consultation with Mr. Greenwood, and at the end of the course an examination will be held and certificates will be awarded to successful students.

5. *Maistries drawing class.*—It is also thought that something ought to be done for the ordinary carpentry, cabinet-making and patterns-making maistries and for mechanical foremen and chargemen. Many of them are good practical workmen, but they are hampered by inability to read ordinary working drawings. It is suggested therefore that a class should be opened for such men to give them a simple course of instruction in the preparation and use of simple working drawings. The course would be confined to simple geometry, plans, elevations and sections and will work up to finished drawings of every day workshop sketches from the students' own rough freehand dimensioned sketches. The class will be held once a week for 20 weeks and will last for two hours. The instruction will be given in Tamil.

6. *Perambur apprentices class.*—Mr. Fyfe has also got into touch with the Loco Superintendent of the Perambur Railway works, and negotiations are now in progress in regard to the opening of a class at the Trades School for apprentices at the works. The details however have not yet been fully worked out, and if the negotiations come to anything, I will send up proposals later. If my suggestions below are approved the class can be opened without any extra expense.

7. If these proposals are approved, next season's programme for the school will consist of the following classes:—

(1) Mechanical engineering		1st year.
(2) " "		2nd "
(3) Plumbing		1st "
(4) " "		2nd "
(5) Electric wiring class		1st "
(6) Machine drawing.		
(7) Maistries (vernacular) drawing.		
(8) Perambur apprentices' class (possibly).		

8. *Accommodation.*—With the possible exception of the Perambur apprentices' class, which it is hoped to hold in working hours, all the classes must be held after workshop hours, that is, after 4-30 p.m. and additional accommodation must be looked for. The landlord of the existing building has offered to rent us a large upstairs hall in Second Line Beach about 150 yards from the present school-building as an extra

class room. He has offered to install lights and one fan and to lease the premises at a monthly rent of Rs. 65. The terms are reasonable, and I submit the proposal for sanction.

9. If it is approved, the time table would be somewhat as below:—

Present building.

Monday	... 4-30 to 6-30 p.m.	Mechanical engineering, first year.
Tuesday	... Do.	Plumbing, first year.
Wednesday	... Do.	Electric wiring.
Thursday	... Do.	Mechanical engineering, second year.
Friday	... Do.	Plumbing, second year.

New class room.

Monday	... 4-30 to 6-30 p.m.	Machine drawing.
Tuesday	... Do.	Maistries vernacular drawing class.
Wednesday	... 4-30 to 5-30 p.m.	Mechanical engineering, theory, first year.
"	... 5-30 to 6-30 "	Do. second year.
Thursday	... 4-30 to 5-30 "	Plumbing, theory, first year.
"	... 5-30 to 6-30 "	Do. second year.
Friday	... 6-30 to 7-30 "	Electric wiring.

The Perambur apprentice class if it materializes can be held any time in the morning or afternoon.

10. *Lecturers.*—For the mechanical engineering and plumbing classes respectively, I propose as lecturers Mr. Lockley of the Beehive Foundry and Mr. Hillier of Oakes & Co., Ltd. During the past session they were paid at the rate of Rs. 15 per lecture, each lecture being of the nominal duration of one hour. If the time table above is approved each lecturer will lecture three days a week for two hours, and I think that they may be paid at the rate of Rs. 10 per hour subject to a maximum of Rs. 20 per day. It is obvious that the present system of payment per lecture is an expensive business, but for practical work inferior men are of little use and it is important to secure the services of men who by reason of their calling have to keep themselves up-to-date in their own particular line. It is clear that if we are to maintain the efficiency of the school we must continue to employ our present lecturers in mechanical engineering and plumbing. For the other classes, however, Mr. Fyfe reports that we can secure the whole-time services of a lecturer who would not only teach, say, twenty hours a week in the day or evening as may be required, but would also act as Assistant Superintendent of the school and relieve Mr. Fyfe of the purely routine office work in connection with the registers and records. The Engineer in question is Mr. G. Verghese a copy of whose application and testimonials is submitted herewith. It will be seen that he has experience in electrical engineering, and I think that he would do well for the electric wiring, machine drawing and maistries (vernacular) drawing class. He would also be available for the Perambur and any other apprentice classes that may be started in the school. I recommend that he be offered an appointment on Rs. 250 per mensem for six months in the first instance. It may be considered later whether the school may be kept open for classes in the hot weather.

11. An estimate of the cost of these proposals is appended:—

<i>Recurring expenditure.</i>		
Lecturers' fees—		Rs.
Mechanical engineering 60 evenings of 2 hours at Rs. 10 per hour.		1,200
Plumbing do. do.		1,200
Electric wiring	} Full-time lecturer on Rs. 250 per mensem for six months	
Machine drawing		
Maistries		1,500
Perambur apprentices if included		
and electric-wiring classes		
Allowance to assistant for the drawing classes		80
Store-keeper, one year, at Rs. 40		480
Rent, Rs. 125 + Rs. 65 per mensem, for twelve months		2,280

	RS.
Lights and fans	480
Cleaning charges	150
Two peons on Rs. 9 each per mensem	216
Postage	50
Library	200
Materials, mechanical engineering	800
Materials, plumbing	800
Materials, drawing	200
Materials, electric wiring	800
Furniture additions and repairs	800
Tools and plant	2,000
Contingencies	8,000
Total	16,586

Non-recurring expenditure.

Furniture and apparatus for new class room	1,200
Drawing apparatus	800
Tools and plant, new classes	2,000
Total	3,500
Total requirements	20,086

12. The budget allotment in the current year for the Government Trade School is Rs. 16,500 of which Rs. 1,155 have already been spent. The balance required is Rs. 4,741 and this expenditure can be met from anticipated savings from the budget provision of Rs. 8,000 for furniture grant.

ENCLOSURES

(1)

THE MADRAS GOVERNMENT TRADES SCHOOL.

Mechanical engineering class-proposed elementary syllabus, 1917-18.

Theory—

Uses of drawing board, Tee square, set squares, scale rule and instruments.
 Drawing of parallel lines with set squares.
 Dividing a line into equal parts.
 Bisecting angles.
 Describing circle or arc of circle through three given points.
 Constructing regular polygon.
 Finding true length of line from plan and elevation, uses of numbers, 7854 and 3-1416.
 Preparing chisels. Different types used in shops. Grinding, hardening, tempering.
 Principle of hand-shearing machine with method of calculating pressure on cutting blade.
 Files. Different types and their uses.
Useful tools.—Principles and practices with correct methods of handling and using.
 Callipers, square, bevel slot gauge.
Pattern making.—Why patterns are made? Materials used in their construction. Cores, core boxes and their uses. Tools used, their names and how used. Various timber joints with sketches and proportions. Pulley patterns, method of making arm joints, 6 and 8 arms.
 The lathe and its uses, general outline of mechanism and parts. Tools used, correct method of grinding and setting same.
 Forging, hardening and tempering lathe tools.
 Preparing work for lathe, use of jenny callipers, centre drill. Securing arrangements, with sketches of various types of carriers.
 Examples in plain turning. Speed of revolving work, use of back gear.
 Screw cutting by the lathe, calculation of change wheels, simple and compound gearing, right and left hand threads, picking up threads, chasing single and double threads.
 Various types of threads with their respective features, Whitworth, Square, Buttress, Knuckle, etc.

Drills and drilling.—Description of machine, making of flat drills, twist drills, taper and parallel shanks, grinding and testing drills, speeds, sleeves and sockets. Marking off work for drilling.

Shaping and planing machines. Difference in construction. Tools, how ground set and used.

Practical—

Making all types of chisels, grinding, hardening and tempering. Chipping cast iron and mild steel. Files, control of file, draw filing.
 Making callipers, squares, etc.

Pattern making. Setting out and making pattern for letter-copying press.

Moulding shop, moulding above patterns, uses of boxes, sand, etc.

Blacksmith shop. Forging necessary parts for press, turning plain work and screw cutting.

Fitting shop, filing and fitting up copying press.

The application in a workshop of above theoretical course with practical demonstration in all cases.

(2)

GOVERNMENT TRADES SCHOOL, MADRAS.

Proposed mechanical engineering class syllabus, 1917-18.

Advanced Theory—

Elementary Applied Mechanics.

Force. Matter. Unit of Force.

The Elements of Force.

Graphic representation of Forces.

Forces in Equilibrium.

Action and Reaction.

Resultant Forces.

Work, Unit of Work.

Work done against variable Resistance.

Diagrams of Work.

Power. Unit of Power H.P.

The Moment of a Force.

Principle of Moments applied to Levers.

Pressure on and reaction from the fulcrum.

Centre of gravity. The lever when its weight is taken into consideration.

Practical application of the lever, steel yard, lever safety valve, bent levers, bell crank lever, pinners.

The principle of work. Work put in, work lost, useful work. Efficiency of a machine.

Principle of work applied to a lever. Wheel and axle, winch barrel, ships capstan, etc.

Pulleys, snatch block, block and tackle, velocity ratio, actual or working advantage.

The wheel and compound axle, Weston's differential pulley block, work applied to it.

Graphic demonstration of forces in equilibrium.

Parallelogram of forces. Triangle of forces.

Stresses in jib crane, stresses on simple roof, inclined plane and principle of work applied to it.

Friction. Heat developed when force overcomes it. Angle of repose or friction.

Lubrication.

Anti friction wheels, ball bearings, work done on inclines including friction.

Belt driving. Difference in tension.

Brake horse-power transmitted by belts.

Velocity ratios, open and crossed belts, fast and loose pulleys. Stepped speed cones.

Shape of pulley face.

Velocity ratio of two friction discs.

Pitch surfaces and pitch circles, pitch of teeth in wheel gearing, rack and pinion, velocity ratio in wheel gearing. Principle of work applied to wheel gearing.

Simple purchase winch or crab. Double purchase.

Do.

Wheel gearing in jib cranes.

Screws. The spiral, helix or ideal line of screw thread. The screw viewed as an inclined plane, characteristics and conditions to be fulfilled by screw threads. Different form of screw threads. Screw coupling for Railway carriages. Single, double and treble threaded screws. Bucklash in wheel and screw gearing.

Efficiency, etc., of a combined lever, screw and pulley gear bottle screw jack.

Screw press for bales. Screw bench vice.

Endless screw and worm wheel, combined pulley, worm and worm wheel, and winch drum.

Worm lifting gear.

Rivets, rivet holes, and rivetting. Joints

MANUFACTURE AND PROPERTIES OF METALS.

Advanced Theory—cont.

Cast iron.—Smelting, composition, how graded.
 Proportions of elements—Sulphur, manganese, phosphorous, silicon, carbon. Tests,
 Tensile strength.
 Description and sketches of blast furnace.
 Method of charging and tapping.
Wrought iron.—How produced, description and sketches of puddling furnace. Puddling,
 rolling, composition, tests, tensile strength.

Steel.—Mild steel, Tool steel and Cast steel.

Types. Bessemer, Siemens Martin, Cementation process.
Bessemer steel, process of manufacture, with sketch and description of Bessemer
 Converter.
Siemens Martin steel, process of manufacture with sketch and description of open hearth
 furnace.
Cementation process of manufacture, with sketch and description of furnace, formation of
Blister steel, Cast steel, Shear steel.
 Tensile strength of steel.
Various metals and Alloys in general use.—Copper, tin, zinc, lead, how obtained and
 various process of manufacture, brass, muntz-metal, naval brass, yellow brass, bronzes
 gun-metal, phosphor bronze, manganese bronze.
 Various mixtures and properties.

Practical—

Advanced chipping and filing.
 Cutting keyways in shaft and pulley by hand.
 Use of file.
 Making gauges for fine measurements.
 Forging simple bolts and nuts.
 Piston rings of different types.
Brasses and Bearings, plain pedestal, cap bearings. Half brasses from castings.
 White metal bearings. Bedding in.
 Oil Grooves. Footstep bearings.
 Coupling rod brasses.
 Pulleys wheels and keys.
 Key proportions. Forging and filing up same.
 Types of keys.
 Rivetting. Caulking. Lap joints.
 Advanced screw cutting in the Lathe.
 Advanced pattern making.
 Advanced moulding.

(3)

Department of Industries—Plumbing Syllabus—Theory—first year.

Water-supply.—Arrangement of service pipes in buildings. Quality and quantity of
 Madras water, and its action upon pipes and fittings. Connection of pipes to mains; methods
 of fixing pipes; house cisterns, their construction and fittings; valves, taps, flushing tanks, stop
 and draining cocks, warming pipes; causes of noises in pipes and ball valves, tracing leakage.
Joints.—Methods of jointing the various metal pipes. Joints most suitable for various
 pipes.

Alloys.—Solders—hard and soft—their uses, preparation and methods of testing.
By-Laws.—By-laws relating to sanitary installations and plumbing, particularly those
 adopted by the Madras Corporation.

Practical work.

Arrangement of pipes in buildings; with services and connection to mains; drainage
 connections to sewers.
Fixing taps.—Cisterns, valves, flushing tanks and other fittings.
Jointing.—Wrought iron, cast iron and lead pipes.
Soldering.—Use of different kinds of solders, and making "wipe joints."
Plumbing tools.—Their correct names, uses and maintenance.
Faults and leaks.—Tracing and remedying them.
Workshop worries.—The ordinary daily difficulties which occur in plumbing and how to
 overcome them.

(4)

Department of Industries—Plumbing Syllabus—Theory—second year.

House drainage.—Methods of laying drains, gradients and sizes, concrete bedding, etc.
 Chambers—materials, construction, sizes. Covers and method of fixing, traps, gullies, dis-
 connecting, P.S.Q. unsealing of taps, causes, and how to prevent same.
Ventilation of drains.—Fresh air inlets. Automatic flush tanks, duties and construction.
Sanitary appliances.—Water closets, baths, lavatories, sinks, etc., their fittings and method
 of fixing; their relative merits and defects.
Soil and waste pipes.—General arrangement and methods of support. Trapping and
 ventilating. Sizes of pipes. Jointing material used in connection with drains.
 Soil pipe branches. Inspection branches, inspection bends.
 Lead soil pipes and bends with inspection doors.

Practical work.

Laying and jointing drains; use of boning rods.
 Fixing water closets, baths, sinks, etc.
 Setting and fixing waste pipes.
 Wiping joints on 4" soil pipes and bends.
Plans and estimates.—Application of by-laws and the preparation of proper plans and
 estimates for submission to the Corporation.
Testing, etc.—Testing work.
 Billing for work after completion.

(5)

Application—from G. VERGHESE, Esq., Engineer, Macbwa Buildings, Deliste
 Road, P.O. Byulla, Bombay.
 To—the Director of Industries, Madras (through Mr. Fyfe, Inspector of Industrial
 Schools).

I beg to apply for the Assistant Superintendent's post in the Government Trades School
 which is going to be opened in Madras during this year.

I have had 13 years' practical experience in mechanical and electrical engineering in
 several parts of India; since I underwent through a three years' theoretical and practical
 training in the Victoria Jubilee Technical Institute (The Central Technological Institute—now
 designated) at Bombay—I hold the "Diploma of Licentiate in Mechanical Engineering" from
 this institute, from which institution I passed out in 1903. The theoretical course was in
 Elementary Steam, Advanced Steam, Applied Mechanics, Machine Drawing, Workshop
 Appliances, Heat, Sound, Light, Electricity and Laboratory training. During this three years'
 course, I have undergone through a six months' practical training in each of the following
 different shops of the institute, viz., Pattern making, Foundry, Smithy, Turning (Lathes),
 Machine tools and Fittings.

I hold a certificate in "Electrical Lighting and Power Transmission" from the City and
 Guilds Institute, London, England.

I am a graduate member of the Institution of Electrical Engineers, London (elected in 1913).
 I possess also the Engineer's certificate of competency granted by the Bombay Government under
 the Bombay Boiler Inspection Act Rules.

I am a matriculate of the University of Madras. I have studied at Madras Christian
 College, Bangalore and Cannanore High Schools.

My practical experience.—I served in the Royal Indian Marine Dockyard at Bombay in the
 Erecting and Electrical Shops over a year and half where I have also worked on the repairs of
 the whole of East India Squadron, Royal Indian Marine Troopships, etc.

I have been in full charge of the South Indian Railway Company's Electrical Installations
 and Power Houses at Trichinopoly, Tanjore and Egmorie junctions for a period of three years
 and four months in all.

I have worked as an Assistant Erector on the construction of the Jhelum Power Hydro-
 Electrical Works in Kashmir State from the start to the finish for a year and a half.

I was employed for four years in the Punjab Public Works Department as the Electrician
 in full charge of all the Government Electrical Power Houses and Installations at Lahore.

During the last two years I tried to do my own business at Madras, when I was offered a
 job temporarily by Mr. Tressler, the Director of Industries, to try to manufacture glass and
 supervise the experimental glass factory and oil mill at Madras in 1915. I was engaged in
 1916 for a period of six months in the erection of the Monazite Factory at Colachel in South
 Travancore.

I can speak Tamil, Malayalam and Hindustani languages. I am 35 years old.

I expect a salary of Rs. 250 per mensem, if my services are to be utilized the whole day in the school.

I might add here that I understand the working of steam engines, oil engines of different makers and gas engines.

I enclose herewith true copies of my testimonials and certificates for your favourable consideration.

Thanking you in anticipation.

II

Letter—from C. A. JONES, Esq., I.C.S., Director of Industries.

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

Dated—Madras, the 20th July 1917.

No.—G. Cur. 116.

In continuation of my letter No. G. Cur. 116, dated 9th June 1917, submitting proposals for classes at the Government Trades School in the cold weather of 1917-1918, I have the honour to say that I have now made provisional arrangements for opening classes for the Perambur apprentices. Copies of the correspondence with the Locomotive and Carriage Superintendent are submitted for information.

ENCLOSURES

(1)

Letter—from the Director of Industries, Madras.

To—the Locomotive and Carriage Superintendent, Perambur Railway Works.

Dated—the 12th July 1917.

No.—G. Cur. 116.

I have the honour to address you on the subject of our conversation this morning.

2. I am now arranging my programme of work for the Government Trades School during the ensuing cold weather, and one of the proposals I have submitted to Government is that one of the lecturers should be paid a fixed monthly salary and that he should be under an engagement to teach up to 20 hours per week. At present I have arranged only 7 hours' lectures for him a week, and if my suggestions are accepted by Government, he will be available for any other classes which it may be decided to open. Accordingly I proposed to you this morning that we should utilise the lecturer's services for opening a class or classes for apprentices in the Perambur Works.

3. I can arrange either for one or two classes, each class to consist of not more than 20 boys. The boys will be selected by yourself, and the only stipulation made is that they should have sufficient general education to enable them to follow the instruction given.

4. Each class will be taken from 2 p.m. to 4 p.m. in the afternoon and can be held on one or two afternoons in the week according as you prefer. The course will extend for about 20 weeks beginning early in September next. No charge will be made either to the railway or to the boys, but the department can accept no responsibility for getting the boys to the school which will be situated in Georgetown. Ordinarily a small fee is charged for admission to classes of this kind, and the fee is refunded to all boys who attend 80 per cent of the lectures. I am willing however to waive the fee in the case of your apprentices on the understanding that boys who are irregular in attendance are dealt with departmentally.

5. The course of instruction and the detailed syllabuses will be drawn up in consultation with yourself. As at present advised, however, I am inclined to think that instruction might be suitably given in the following subjects, the general idea being to turn out a class of boys capable of becoming either draughtsmen or chargemen or foremen:—

(1) Mechanical drawing commencing with the use of a drawing board and instruments and working up to finished pencil drawings of nuts, bolts, screws and small fittings borrowed from the Perambur Workshop or Store, special attention being devoted to accurate drawing from the students' own freehand dimensioned sketches.

(2) Elementary mathematics—measurements of areas and volumes, graphs and graphical calculations.

(3) Elementary mechanics—theory of levers, pulleys and simple mechanical devices.

(4) Simple lectures on the characteristics of metals, alloys, fluxes, etc.

(5) Practical demonstrations on, say, starting a smithy fire, and any other practical demonstration work which may with advantage be undertaken with the equipment in the school.

6. I have the honour to enquire whether the scheme thus outlined meets with your approval, and if so, whether you would let me know

(1) how many apprentices you are prepared to send to the school, and

(2) how many days a week you would like the class or classes to meet.

The scheme of course is only an outline one, and details can be filled in later.

7. I should be grateful for an early reply.

(2)

Letter—from the Locomotive and Carriage Superintendent, Perambur Railway Works.

To—the Director of Industries, Madras.

Dated—the 17th July 1917.

No.—L. 1022.

I have the honour to acknowledge receipt of your letter quoted above and to state that the scheme outlined therein would appear to be suitable.

2. Arrangements could be made to send 20 apprentices from the Perambur Workshops on Tuesdays and Fridays.

3. This would mean the class putting in two attendances of two hours each every week till the course is completed and that the class would meet two days a week.

4. The hours of instruction as proposed by you, viz., 2 to 4 p.m., would suit very well at present, but if any alterations in the train service necessitates some change in the hours named, it is presumed there will be no difficulty in making a slight alteration in the hours of attendance.

Order—No. 997, Home (Education), dated the 31st July 1917.

The Government approve the proposals submitted by the Officer in charge of the Department of Industries for the opening of classes in the Madras Trades School in the current official year.

2. Sanction is accorded to the employment in the school of Mr. G. Verghese as a whole-time lecturer on a salary of Rs. 250 per mensem for a period of six months. The proposal to employ a storekeeper on Rs. 40 per mensem and two peons on Rs. 9 each per mensem for a period of one year is approved on the understanding that their services should be dispensed with as soon as the work permits. The peons will be ineligible for grain compensation allowance.

3. The part-time lecturers in mechanical engineering and plumbing will each be paid a fee at the rate of Rs. 10 per hour, subject to a maximum of Rs. 20 per day and of Rs. 1,200 for the whole course.

4. The Government sanction the proposal to hire for a period of one year an additional building for the accommodation of the classes at a monthly rent of Rs. 65.

5. The estimates for allowances to demonstrators and to the assistant for the drawing classes and for the other items of recurring and non-recurring expenditure provided for in paragraph 11 of the first of the letters read above are also approved. The expenditure on account of the school in the current year will be met from the sources indicated in paragraph 12 of that letter.

6. A report on the working of the school should be submitted at the termination of the course.

(True Extract)

R. RAMACHANDRA RAO,
Secretary to Government.

To the Officer in charge of the Department of Industries
Financial Department.

NOTES CONNECTED WITH G.O. No. 997, HOME (EDUCATION),
DATED 31st JULY 1917

[SUBJECT.—Proposals for the working of the Madras Trades School
in the cold weather of 1917–18.]

	Previous papers :		
G.O.	776,	Educational,	24th Aug. 1912
"	1092,	Home (Education),	17th Oct. "
"	1232	"	22nd Nov. 1916
"	728	"	2nd June 1917

HOME (EDUCATION) DEPARTMENT.

From the Officer in charge of the Department of Industries, No. G. Cur. 116,
dated 9th June 1917.

Please see G.O. No. 1092, Home (Education), dated the 17th October 1916, in which the Government approved the proposals for starting trades classes in plumbing and mechanical engineering for a period of six months at Madras. The report on the working of these classes will be found in G.O. No. 728, Home (Education), dated the 2nd June 1917. As the experiment proved on the whole a success, Mr. Innes submits proposals for continuing the existing classes and for opening new classes in the ensuing cold weather. He proposes to have classes in the following subjects:—

- (1) mechanical engineering ;
- (2) plumbing ;
- (3) machine drawing ;
- (4) electric wiring ; and
- (5) maistries drawing class (vernacular).

He also hopes to submit proposals later on for opening a class for apprentices who are working in the Perambur workshops.

The necessity for providing instruction in a large number of subjects in the Madras Trades School was urged by the committee which was appointed by the Government in 1914, to work out details connected with the school (paragraph 5, page 13 of G.O. No. 1092, dated 17th October 1916). Mr. Innes has selected only a few subjects, for technical instruction in which there is clear demand in the city.

E.A.H.—20-6-17. The Government may, it is submitted,
approve the subjects selected by him.

2. In mechanical engineering and plumbing Mr. Innes proposes to have two classes, one for students who passed out of the classes held in the last session and the other for new admissions. From the results of the examinations of the students who underwent training in the last session, it will be seen that a further course is necessary for those students if they should become efficient workmen (pages 2 and 3 of G.O. No. 728, dated 2nd June 1917). The proposal to have an advanced class in

E.A.H.—20-6-17. addition to the first year (or elementary)
class in the two subjects mentioned may
therefore be accepted.

3. *Accommodation*.—As the building already rented for the school does not contain accommodation for all the new classes proposed, Mr. Innes states that he has selected a large upstairs hall in another house to be rented at Rs. 65 a month. The

E.A.H.—20-6-17. | renting of this additional accommodation may be sanctioned.

4. *Establishment*.—As regards lecturers Mr. Innes proposes to engage the services of Messrs. Lockley and Hillier who were employed in the last session also, for giving instruction in plumbing and mechanical engineering. According to the time-table in paragraph 9 of Mr. Innes' letter each of these lecturers will have two hours' work a day on three evenings in a week. The remuneration sanctioned for them last year was Rs. 15 for one hour's lecture (paragraph 4, page 22 of G.O. No. 1092, dated 17th October 1916). Mr. Innes now proposes to allow Rs. 20 for

E.A.H.—20-6-17. | each two-hour period of an evening. This rate does not seem to be high and may be approved.

The monthly remuneration to each of the two gentlemen will at this rate amount to about Rs. 240 *. As the remuneration thus exceeds Rs. 200 per mensem, the sanction of the Government of India may perhaps have to be obtained to their employment under article 773

* For a two-hour period	Rs. 20
For 3 two-hour periods or one week	60
For one month	240

If the remuneration is Rs. 200 or above the sanction of the Government of India may be necessary.

E.A.H.—20-6-17.

(a) of the Civil Account Code. It is not however quite clear whether this is necessary as they are to be only part-time employees and the Financial Department may be requested to advise on the point.

5. As regards the lecturer for the remaining classes, Mr. Innes recommends the employment of a full-time assistant, one Mr. G. Verghese, on Rs. 250 per mensem for a period of six months. The necessity for a full-time assistant is explained in paragraph 10 of Mr. Innes' letter. According to the time-table in paragraph 9 of Mr. Innes' letter the assistant will have only seven hours' work a week. But if the proposed class for apprentices in Perambur workshops is also opened he may have more work. According to Mr. Fyfe, the assistant can be given 20 hours' teaching work. It is not clear how this will be the case unless several additional classes are opened in the mornings or afternoons. It is true that there may be other work for the assistant, such as, the maintenance of records and registers and the carrying on of correspondence. It is for orders whether the proposal to have a full-time assistant may be approved. If Mr. Verghese is paid at the rate of Rs. 10 per hour, he will earn a remuneration of Rs. (70 × 20) 1,400 in all. His fixed pay for six months comes to Rs. 1,500.

6. Mr. Verghese is a licentiate in mechanical engineering of the Bombay Victoria Technical Institute and seems to have gained considerable practical

E.A.H.—20-6-17.

experience in various places. The pay proposed for him, viz., Rs. 250 may, it is submitted, be approved.

7. In the estimate of recurring expenditure provision is made, as was done last year, for the employment of demonstrators in each subject to assist the lecturers and for a storekeeper on Rs. 40. These may be allowed. As there will be classes in two different buildings it is proposed to have two peons on Rs. 9 each instead of one as in the last year. This may also be approved. The other items provided

E.A.H.—20-6-17.

for in the estimate of recurring expenditure do not seem to call for remarks nor

do the items of non-recurring expenditure provided for by Mr. Innes.

8. *Cost of the scheme*.—In calculating the cost of the scheme during the current year Mr. Innes takes into account the charges for a whole year on account of the employment of a storekeeper on Rs. 40 per mensem and two peons on Rs. 9 each per mensem and the renting of an additional house (on Rs. 65 a month). As the

school is to be opened only in the cold weather of this year and as the classes are to extend only for about 20 weeks it is not clear why a full year's provision is made for the items mentioned above. Perhaps Mr. Innes may be consulted u.o. as to whether six months' charges will not be sufficient. If necessary, a watchman may be employed to guard the existing building till the school is reopened.

9. As regards the levy of fees it is presumed that the procedure adopted last year of collecting small fees from the pupils at the beginning of the course and refunding them at the end of the course to those who regularly attended the classes will be allowed in this year also—Paragraph 2, page 2 of G.O. No. 1232, dated 22nd November 1916.

10. The file may be sent to Mr. Innes u.o. for remarks with reference to paragraph 8 above.

S.K.—18-6-17.

N.K.—19-6-17.

Mr. Innes' proposals seem to be sound and may be generally approved; of the points raised in the note above, the rate of pay to the lecturer on plumbing and mechanical engineering calls for comment. Though I do not think that the rate proposed by Mr. Innes is high, yet it is conceivable that it might come cheaper and be more satisfactory to give each a fixed monthly stipend of, say, Rs. 200. If the stipend is fixed at Rs. 200 or less a reference to India will be avoided.

As regards paragraph 8 above the school will presumably be continued after an interval of time and the staff, building, etc., will continue to be required. It will be difficult to dispense with the staff for that comparatively short time and also to retain the building without paying rent for it.

E. A. HARVEY—20-6-17.

Mr. Innes u.o.

P. R[AJAGOPALA ACHARIYAR]—21-6-17.

OFFICE OF THE DIRECTOR OF INDUSTRIES.

There is no objection to offering Messrs. Lockley and Hillier Rs. 200 a month (subject to a maximum of Rs. 1,200 for the whole course) instead of Rs. 10 per hour, but I don't see that any advantage is gained thereby.

2. If a reference to the Government of India is adjudged necessary by the Financial Department, perhaps Government could see their way to making the appointments in anticipation of formal sanction, as the rule permits. I want to engage the second room, issue notices and make arrangements generally for opening the classes in September and there is not much time left.

3. It is proposed to engage Mr. Verghese for 20 hours' teaching work a week so as to have him available for any other classes that may be available. For the moment he will have only 7 hours' teaching a week or 11 hours if the Perambur classes are arranged. In any case we could not get a man of his attainments for less than Rs. 250 per mensem and it is well to make the agreement with him cover future contingencies.

4. The storekeeper and peon won't be required for all the year; on the other hand some charges in respect of them have already been incurred against this year's budget allotment, and having regard to examinations, etc., it is difficult to say exactly for how many months they will be required. Perhaps the appointments might be sanctioned for a year on the understanding that the men should be got rid of as soon as work permits.

5. As regards the buildings, they must be rented for a whole year. Otherwise, as in the case of houses at Madras, the landlords would not let them.

6. I should be grateful for early orders.

C. A. INNES—10-7-17.

HOME (EDUCATION) DEPARTMENT

As regards remuneration to Messrs. Lockley and Hillier the Financial Department may, it is submitted, be consulted.

2. The proposal to employ Mr. Verghese as full time assistant on Rs. 250 per mensem may be accepted.

3. In the circumstances explained by Mr. Innes the employment of the store-keeper and peons for a whole year may be approved on the understanding that their services should be dispensed with as soon as the work permits. The proposal to rent the houses for one year may also be sanctioned.

4. The file may be sent to the Financial Department for remarks.

S.K.—13-7-17.

N.K.—13-7-17.

E. A. HARVEY—14-7-17.

R. RAMACHANDRA RAO—14-7-17.

FINANCIAL DEPARTMENT

The extra cost involved in the proposal of the Director of Industries to hold certain classes in the Government Trades School during the cold weather of 1917-18 is shown below :—

Recurring items.		Extra cost.
		Rs.
(a) One lecturer on Rs. 250 in electric wiring, etc., for six months ...		1,500
(b) Allowances to two part-time lecturers at Rs. 10 per hour ...		2,400
(c) Allowances to demonstrators and to the assistant in drawing classes ...		430
(d) One storekeeper (40) for twelve months ...		480
(e) Two peons (9) for twelve months ...		216
(f) House-rent (100) for twelve months ...		2,280
(g) Materials ...		2,600
(h) Furniture (additions and repairs) tools and plant and contingencies.		6,680
		16,586
Non-recurring charges.		
(i) Furniture (for new class), apparatus and tools and plant ...		3,500
Total ...		20,086

The cost of holding classes (up to the 1st May 1917) in the Trades School during 1916-17 was Rs. 8,638 (page 3 of G.O. No. 728, Home (Education), dated 2nd June 1917). The large increase of expenditure proposed to be incurred during the coming season is due to the fact that, while in last year only classes in elementary mechanical engineering and elementary plumbing were held, it is proposed to hold during the next session many other classes in addition. The holding of classes on the increased scale, which the Director of Industries considers necessary and which the Home Department has approved, may it is submitted, be accepted. It will be seen from paragraph 10 of the Director's letter on page 3 of G.O. No. 728, Home (Education), dated 2nd June 1917 that the classes held in 1916-17 were a success. The details of the expenditure proposed are examined below.

2. Item (a).—One whole-time lecturer on Rs. 250 per mensem for six months—paragraph 10, Director's letter, paragraphs 5 and 6 of Home (Education) note on page 2 ante, and paragraph 3 of Director's note on page 3 ante. The proposed employment of Mr. Verghese may, it is submitted, be agreed to in Financial.

L.E.K.—24-7-17.
L.D.—25-7-17.

The salary of Rs. 250 per mensem does not appear to be high and may be accepted.

3. Item (b)—Part-time lecturers.—Home Under Secretary's note on page 3 ante and paragraphs 1-2 of the Director's note on page 3 ante. During the last session, the part-time lecturers were paid at the rate of Rs. 15 per hour. At the rates now proposed, viz., Rs. 20 for a day of two hour lectures and for three days in a week subject to an aggregate total fee of Rs. 1,200 for twenty weeks it is likely that the two lecturers (Messrs. Lockley and Hillier) may, in any one month, draw more than Rs. 200 each. The Home Department accordingly raise the question of the applicability of article 773 (a) of the Civil Account Code, Volume II, in their case. Please see Home Under Secretary's note and the Director's note on page 3 ante. If article 773 (a) of the Civil Account Code is held to be applicable to the present case, it is submitted that even if their monthly remuneration is fixed at Rs. 200 each, a reference to the Government of India is necessary.

Article 773 (a) of the Civil Account Code refers to regular "officers" carrying salary of Rs. 200 and upwards, i.e., appointments both temporary and permanent. In the present case, two private gentlemen are to be paid fees on a fixed scale for some services to be performed by them and it is not clear whether the article is applicable to such cases. In the case of Mr. Luber, Pencil Expert, disposed of in G.O. Nos. 98-99, Educational, dated 1st February 1915, he was a whole-time officer working in the Department of Industries on daily wages of Rs. 10 and the Government of India's sanction was rightly obtained to his employment. In the present case the two men are not whole-time officers of Government. Article 773 (a) is, however, an audit rule. It is possible that the Accountant-General will stretch the article to extend to the present case; and if he actually raises later on the question of the applicability of the article, on the ground that the remuneration of the lecturers exceeds Rs. 200 in any month, it is submitted that the Home Department may be left to obtain the requisite sanction of the Government of India.

Personally I don't think the article applies. The payment is really in the shape of fees or honoraria. The Accountant-General may be left to object.

L.E.K.—24-7-17.

L.D.—25-7-17.

As regards the rate of remuneration to the lecturers, it may, it is submitted, be fixed at Rs. 10 per hour, subject to a maximum of Rs. 1,200 each for the whole course, as proposed by Mr. Innes as it is stated that there is no advantage in imposing a monthly limit of Rs. 200.

L.E.K.—24-7-17.

L.D.—25-7-17.

4. The other items call for no remarks and the proposals may be accepted. The peons may be declared ineligible for grain compensation allowance.

5. Provision of funds.—The Director of Industries has indicated the source from which the extra cost that may be incurred in the current year will be met.

T.R.N.N.—23-7-17.

A.S.—23-7-17.

L. R. KESHAW—24-7-17.

L. DAVIDSON—25-7-17.

HOME (EDUCATION) DEPARTMENT.

Draft please.

E. A. HARVEY—26-7-17.

A draft order is submitted for approval.

2. Mr. Innes has since submitted his proposals for the opening of classes in the Trades school for Perambur apprentices. The proposals do not involve any special additional expenditure. It may, however, be noted here that when, in 1912, a committee was appointed to consider the scheme for the establishment of state

3. Mr. Innes proposes to waive the usual fee of Rs. 3 in the case of all Perambur apprentices and to leave such pupils as are remiss in attendance to be dealt with departmentally. He does not, however, seek the specific sanction of Government to this course. If such is considered necessary, he will no doubt come up to Government later on.

N.K.—28-7-17.

E. A. HARVEY—30-7-17.

Issue, as the matter is urgent. After issue, submit to Honourable Member (Industries).

R. RAMACHANDRA RAO—31-7-17.

[G.O. No. 997, Home (Education), dated 31st July 1917.]

Thanks.

P. R[AJAGOPALA ACHARIYAR]—8-8-17..

Grade School

Approving the proposals submitted by the
offices in charge of the Dept. of Industries
for the opening of classes in the Madras —
in the current year.

READ AGAIN G.O. No. _____, dated _____, 191

” ” ” ” ” ” 191

READ ALSO:-

C. No. 2246A, From the Office in charge No. 116, dated 19. 6. 1917

2686A 7 1917

” ” ” ” ” ” ” ” 191

ORDER.

No. 997, dated 31. 7. 1917

25

The Govt. approve
the proposals submitted
by the officers in charge
of the Department of
Industries for the opening
of classes in the K. S. S. S.
Trade School in the
current ^{official} year.

2. Sanction is accorded to the employment in the school of Mr. J. Verghese as a whole-time lecturer on a salary of Rs 250 per month for a period of six months.

The proposal to employ a storekeeper on Rs 40 per mensem & two peons on Rs 9 each per mensem for a period of one year is approved on the understanding that their services should be dispensed with as soon as the work permits. The peons will be ineligible for grain compensation allowance.

3. The part-time ^{mechanical engineering and plumbing} lecturers ^{each} will be paid a fee ^{made} of Rs 10 ^{per hour} for each hour lectured subject to a maximum fee of Rs 20 per day ^{and the} Rs 1,200 to be paid for the whole course.

4. The Govt sanction the proposal to hire for a period of one year an ~~additional~~ building for the accommodation of the classes at a monthly rent of Rs 65.

5. The estimates for allowances to ~~the~~ demonstrators & to the assistant.

Mr. Kumar's note on p. 12 of p. 1.

para. 10 - para 6 of CF
para 1 of Mr. Kumar's note,
p. 9 of CF.

para 8, p. 5 of CF.

para 7 & 8 of CF.

p. 8 of CF.

assistant for the drawing classes and for the other items of recurring & non-recurring expenditure provided for in para 11 of the first of the letters read above are also approved. The expenditure on account of the ~~improvement of the~~ school in the current year will be met from the sources indicated in para 12 of that letter.

6. A report on the working of the school should be submitted at the termination of the course.

SK
27.7.17.

E.A.N.
28.7.17 May 31/2/17

To the ^{1st} ^{2nd} ^{3rd} ^{4th} ^{5th} ^{6th} ^{7th} ^{8th} ^{9th} ^{10th} ^{11th} ^{12th} ^{13th} ^{14th} ^{15th} ^{16th} ^{17th} ^{18th} ^{19th} ^{20th} ^{21st} ^{22nd} ^{23rd} ^{24th} ^{25th} ^{26th} ^{27th} ^{28th} ^{29th} ^{30th} ^{31st} ^{32nd} ^{33rd} ^{34th} ^{35th} ^{36th} ^{37th} ^{38th} ^{39th} ^{40th} ^{41st} ^{42nd} ^{43rd} ^{44th} ^{45th} ^{46th} ^{47th} ^{48th} ^{49th} ^{50th} ^{51st} ^{52nd} ^{53rd} ^{54th} ^{55th} ^{56th} ^{57th} ^{58th} ^{59th} ^{60th} ^{61st} ^{62nd} ^{63rd} ^{64th} ^{65th} ^{66th} ^{67th} ^{68th} ^{69th} ^{70th} ^{71st} ^{72nd} ^{73rd} ^{74th} ^{75th} ^{76th} ^{77th} ^{78th} ^{79th} ^{80th} ^{81st} ^{82nd} ^{83rd} ^{84th} ^{85th} ^{86th} ^{87th} ^{88th} ^{89th} ^{90th} ^{91st} ^{92nd} ^{93rd} ^{94th} ^{95th} ^{96th} ^{97th} ^{98th} ^{99th} ^{100th} ^{101st} ^{102nd} ^{103rd} ^{104th} ^{105th} ^{106th} ^{107th} ^{108th} ^{109th} ^{110th} ^{111th} ^{112th} ^{113th} ^{114th} ^{115th} ^{116th} ^{117th} ^{118th} ^{119th} ^{120th} ^{121st} ^{122nd} 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Don't print these Testimonials

TRUE COPIES

OF

TESTIMONIALS.

12

OFFICE OF THE ELECTRICAL INSPECTOR
TO GOVERNMENT,

PUNJAB, LAHORE,

Dated the 7th October, 1914.

This is to certify that Mr. G. VERGHESE, has served four years, from October 1910 to October 1914, in this Department as Electrician in charge of the various Government Installations in Lahore. He has been accustomed to looking after Steam and Oil Generating plants, and held responsible for their efficient running. He is also well versed in all classes of wiring buildings for lights and fans. His services in this Department are being dispensed with owing to the closing down of the Government Power House plants. I can recommend him for employment as Head assistant, in any Generating station, High or Low tension; and I shall be glad to hear of his advancement. His last salary was Rs. 250 plus Rs. 30 conveyance allowance per mensem.

(Signed) H. C. GREENWOOD,

*Electrical Inspector
to the Punjab Government.*

GURGAON,

17th May, 1913.

DEAR MR. VERGHESE,

Yours of the 8th instant duly to hand. I have not been able to reply before, and I hope this delay will not interfere with your application to the Institute.

I am very pleased to certify that you held charge of two steam and one oil Electrical plants, for fans and lights in Lahore for a little over 2 years, during the time I was in charge of the division there.

Your work in running the plants and maintenance of lines, fittings etc., was quite satisfactory. I would specially mention the working of our big Dynamo. This was

handed over to you in a very rickety and broken down condition and you deserve credit for the way you managed to keep her going for the two years without a hitch or stop of any kind.

You might send this letter on with your application to the Institute, and if they want any further information, refer them to me and I shall be pleased to supply it.

I shall be pleased to hear that you have been elected an Associate, and wish you good luck for the future.

Sincerely yours,
(Signed) EDWIN O. GILBERT,
Executive Engineer,
P. W. D., Punjab.

SOUTH INDIAN RAILWAY COMPANY, LIMITED.

ELECTRICAL & SIGNALLING ENGINEER'S OFFICE,

Trichinopoly: 25th August, 1913.

This is to certify that MR. GEORGE VERGHESE was employed in the Electric and Signal department of the South Indian Railway from December 1908 to October 1910. He was in charge of Electric Light and Power Installations at Trichinopoly, Tanjore and Madras-Egmore Stations, gaining experience in Steam and Suction Gas Plants.

He proved himself to be a good mechanic with a sound knowledge of Electricity, and carried out repairs to Arc-lamps, fans, etc., with his own hands.

He left his appointment on the South Indian Railway of his own accord to better his prospects. His general conduct was quite satisfactory and I wish him every success in the future.

(Sd.) A. H. SMYTH,
Ag. Elect. and Sigg. Engineer.

To Mr. G. VERGHESE.

MR. G. VERGHESE has worked for the Electrical Dept., as an Assistant Erector, all through the Installation of the Jhelum Power Hydro-Electric works. 14

He has done his work well and satisfactorily, and given, the Engineer in-Charge and myself satisfaction.

I am only parting with him as the works are completed and in operation.

(Sd.) A. J. DE-LOTBINIERE,
MAJ. R. E.

SRINAGAR,
10th November 1908. }

Chief Engineer,
Jammu and Kashmir;
ELECTRICAL DEPARTMENT.

ELECTRICAL DEPARTMENT.

JAMMU AND KASHMIR STATE,

Dated Mohora, the 3rd November 1908.

This is to certify that Mr. GEO. VERGHESE has been employed under my direction for the past year and a half as an Assistant Erector on the construction of the Jhelum Power Installation from its very start and I deem him a thoroughly capable man for the setting of Machine tools and steam engines and boilers, also well able to take charge of, and run the same besides being able to carry out repairs, independently.

He is also well acquainted with the assembling and fitting up of Electrical apparatus and machinery, having worked with me on the following:—

4-1000 K. W. Alternating Generators,

2-1200 K. W. Exciters,

1-Motor Generator Set, 50 H P, 2080 Volt

Running Conduits and wiring.

Preparing 60,000 Volt line Material and insulators,

Piping up water cooling and oil-treating system for 60,000 Volt, 1000 K. W. Transformers.

Fitting up of a Steam-driven temporary work shop and a permanent Motor-driven Machine Shop and tools; also

considerable Mechanical and Electrical work for other parts of the plant.

I have always found him sober, industrious and willing in the performance of his duties.

He leaves us as the installation has been completed, and I wish him every success in his future undertakings.

(Sd.) CHAS. COLE,
Chief Mechanical Erector,

Late of JHELUM POWER INSTALLATION.
GENERAL ELECTRIC COY.
Shenectady, N. Y. U. S. A.

PUBLIC WORKS DEPARTMENT.

JAMMU AND KASHMIR STATE.

Dated Mohora, the 5th November 1908.

Mr. VERGHESE's services have been lent to me from time to time, during the Jhelum Power Works for small mechanical jobs I wanted done. He always gave me satisfaction. He is quiet and very willing. He leaves here owing to reduction of constructional establishment.

(Sd.) R. F. TROTTER,
Assistant Engineer, J. P. Division.

SOUTH INDIAN RAILWAY Co., LTD.

ELECTRICAL ENGINEER'S OFFICE,

Trichinopoly, 16th May 1917.

I have pleasure in stating that Mr. GEO. VERGHESE has been in charge of the Electrical Light and Power Installations at Trichinopoly and Tanjore from 26th November 1905 to 16th May 1907, and I can speak highly of the technical abilities he has shown in the performance of his duties. He leaves the service of the Company to better his prospects, and I wish him every success in his new duties.

(Sd.) A. H. SMYTH,
Assistant Electrical Engineer,
South Indian Railway.

Copy of a letter No. S. T. 3131 dated 15/10/05, from Mr. Chas. T. AMOR., Engineer R.I.M., to Mr. A. SMYTH E. and S. Engineer, S. I. Ry.

Concerning Mr. GEO. VERGHESE and his qualifications as an Electrical Engineer, I can give no definite reply. He certainly did serve some time in the Electrical Department here and I think he is worth a trial as he is a rather intelligent lad and eager to learn.

CERTIFICATE No. 33.

R. I. M. DOCKYARD,
Bombay 13th March 1905.

This is to certify that Mr. G. VERGHESE
(Daily hired establishment.)

DESIGNATION. Viceman.	} has served in the Royal
DEPARTMENT. Chief Constructor's Factory Branch.	
PERIOD. From 6th January 1904 to 13th March 1905.	} Indian Marine Dockyard in the Capacity & for the period shown in the margin

and that he has conducted himself with satisfaction.

F. B. PHILLIPS,
Ag. Foreman, R. I. M.

(Sd.) F. F. PICKARD,
for Chief Constructor.

(Sd.) F. F. PICKARD,
Inspector of Machinery,

(Sd.) G. H. HEWETT,
Director of the Royal Indian Marine.

BOMBAY,
Byculla, 13th June 1905.

MR. G. VERGHESE, worked as an extra Engineer in the construction of the plant for Brush & Co's. central lighting station at Mazagon for a period of couple of months. He is fairly well up in his work. He was popular with his workmen. We dispense with his services as the work for which he was employed has been completed.

(Sd.) A. SMITH,
for White & Co., Civil, Mechanical
& Electric Engineers,

VICTORIA JUBILEE TECHNICAL INSTITUTE,
BYCULLA.

BOMBAY, 21st November 1903.

GEORGE VERGHESE has been a student in the Engineering Department of the above institute for a period of 3 years. His conduct and general progress have been very satisfactory, and I consider him a smart lad and one who will intelligently carry out any work with which he may be entrusted.

(Sd.) TOM S. DAWSON,
Engineering Master & Lecturer.

I hereby certify that GEORGE VERGHESE has completed in the workshops of the Institute a three years course, and during that period has been constantly instructed in the management of boilers and engines.

(Sd.) HUGH MONIE,
PRINCIPAL.
Victoria Jubilee Technical Institute.

BOMBAY, 12th December 1903.

VICTORIA JUBILEE TECHNICAL INSTITUTE,
BOMBAY.

GEORGE VERGHESE having completed the course and passed the examination held during three sessions ending the year one thousand nine hundred and three (1903) in

Technological Mechanical Engineering
and the complimentary Science Subjects, the Board of the Institute on the award of its examiners, has granted him this
Full Technological Certificate of the First Class
with the title **Licentiate of Mechanical Engineering.**

(Sd.) E. GILES,
Director of Public Instruction.
(Sd.) E. REBSCH,
Chairman.
(Sd.) R. MOOS,
Hon. Secretary.
(Sd.) HUGH MONIE,
Principal.

CITY AND GUILDS OF LONDON INSTITUTE
(INCORPORATED BY ROYAL CHARTER)

Department of Technology.

This is to certify that at the Examination held in 1903, GEORGE VERGHESE passed in the Second Class of the ordinary Grade in Electric Lighting and Power.

(Sd.) I. WOLFE-BARRY,
Chairman of the Executive Committee.
(Sd.) S. S. GLADSTONE,

Treasurer.

(Sd.) GEORGE MATHEY,
Chairman of the Technology Committee.
(Sd.) PHILIP MAGNUS,
Superintendent of Department of Technology.

(Sd.) GEO. VERGHESE,
Signature of holder of this certificate.

VICTORIA JUBILEE TECHNICAL INSTITUTE,
BOMBAY.

This is to certify that The Lord Reay Scholarship for Technical Mechanical Engineering and the complimentary science subjects was awarded to GEORGE VERGHESE for the session, 1902.

(Sd.) E. REBSCH,
Chairman.

(Sd.) N. MOOS,
Honorary Secretary.

(Sd.) HUGH MONIE,
Principal.

HOPKIN AND WILLIAMS (TRAVANCORE)
LIMITED.

COLACHEL, S. TRAVANCORE, S. INDIA.
5th October, 1916.

MR. GEORGE VERGHESE has been with us the last six months in our Monazite Factory during its construction and the installation of Dynamo, Blackstone oil Engine, Petters oil Engines, Pumps, Electric lights and other Engineering Works. He will be leaving us shortly as the work of construction is almost over.

(Sd.) E. MASILLAMONI,
Ag. Manager.

Copy of a letter of introduction from the Director of Industries, Madras Government, to the Principal, Engineering College, Madras.

MADRAS, 2nd November, 1915.

MR. VERGHESE, one of my temporary assistants, tells me that there is a job going under you in the Electrical line. I have not tried him on Electrical work, but I understand that he has had a good deal of experience in this line. He comes of a good family and is a steady and hard-working man.

I think he would probably suit you.

Yours sincerely,
(Sd.) K. T. B. TRESSLER.

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the syllabus submitted for the
year is full of handicrafts that
the Madras Electric Supply Corporation
the Director of Industries
the Madras Electric Supply Corporation

G.O. No. 997, 31st July 1917

Trades School

Approving the proposals submitted by the Officer in charge of the Department of Industries for the opening of classes in the Madras — in the current year.

READ—the following papers :—

I
Letter—from C. A. INNES, Esq., I.C.S., Director of Industries.
To—the Secretary to Government, Home (Education) Department.
Dated—Madras, the 8th June 1917.
No.—G. Cur. 118.

In my letter G. Cur. No. 124, dated the 18th May 1917, I submitted a report on the working of the Government Trades school in the session 1916-17. I have now the honour to submit my proposals for the school in the cold weather of 1917-18.

2. *Mechanical engineering and plumbing.*—So far, as will be seen from the report referred to, classes have been conducted in the school in elementary mechanical engineering and elementary plumbing. ~~Twelve~~ out of 17 students have been passed out of the former class by Mr. Coats and 11 out of 19 out of the latter by Mr. Madeley. It is proposed therefore in the ensuing cold weather to hold two classes in each subject—a second year course for students who have passed out of the elementary class, and a first year's course for new students or students who wish to repeat last year's course. Draft syllabuses are attached. Those for the elementary course have been revised in the light of the experience already gained. In consultation with the lecturers, it has been decided that in future more time must be given to practical work, and it is proposed that each course should consist of 20 meetings of two hours' duration and 20 meetings of one hour's duration.

3. *Machine drawing.*—Mr. Fyfe and the lecturers also report that a special machine-drawing class would be very useful to the best students of the mechanical engineering and plumbing classes and also to many overseers and foremen who have not as yet attended the school. It is proposed therefore to open a machine-drawing class. It will be held once a week for 20 weeks and will last for two hours.

4. *Electric wiring class.*—In January last, Sir Clement Simpson brought to my notice the great need for instituting some sort of scheme for certificating electric wiremen in Madras. The question of licensing electric-wiring contractors has frequently been raised. The Madras Electric Supply Corporation, Limited, asked the President of the Corporation of Madras to move in the matter in September 1914, and in the course of its letter remarked : "At present any man who has the slightest mechanical knowledge and a few crude tools, can call himself an electric wireman, and by quoting low rates, get plenty of work. The result is, houses are wired in a faulty manner, and under the trying weather conditions here, short circuits and leakages of current soon begin to manifest themselves." Mr. Greenwood, the Electric Inspector to Government, also brought the matter to the notice of the Chief Engineer and suggested that a system of certificating wiremen after examination should be introduced. He referred to "the indifferent wiremen available in this part of India" and pointed out that "results of bad workmanship are annoyance to the

8. **Accommodation.**—With the possible exception of the Perambur apprentices' class, which it is hoped to hold in working hours, all the classes must be held after workshop hours, that is, after 4-30 p.m. and additional accommodation must be looked for. The landlord of the existing building has offered to rent us a large upstairs hall in Second Line Beach about 150 yards from the present school building as an extra class room. He has offered to install lights and fan and to lease the premises at a monthly rent of Rs. 65. The terms are reasonable, and I submit the proposal for sanction.

9. If it is approved, the time table would be somewhat as below:—

Present building.		
Monday	... 4-30 to 6-30 p.m.	Mechanical engineering, first year.
Tuesday	... Do.	Plumbing, first year.
Wednesday	... Do.	Electric wiring.
Thursday	... Do.	Mechanical engineering, second year.
Friday	... Do.	Plumbing, second year.
New class room.		
Monday	... 4-30 to 6-30 p.m.	Machine drawing.
Tuesday	... Do.	Maistries vernacular drawing class.
Wednesday	... 4-30 to 5-30 p.m.	Mechanical engineering, theory, first year.
Thursday	... 5-30 to 6-30	Do. second year.
Friday	... 5-30 to 6-30	Plumbing, theory/first year.
Friday	... 6-30 to 7-30	Do. second year.
Friday	... 6-30 to 7-30	Electric wiring.

The Perambur apprentice class if it materialize can be held any time in the morning or afternoon.

10. **Lecturers.**—For the mechanical engineering and plumbing classes respectively I propose as lecturers Mr. Lockley of the Beehive Foundry and Mr. Hillier of Oakes & Co., Ltd. During the past session they were paid at the rate of Rs. 15 per lecture, each lecture being of the nominal duration of one hour. If the time table above is approved each lecturer will lecture three days a week for two hours, and I think that they may be paid at the rate of Rs. 10 per hour subject to a maximum of Rs. 20 per day. It is obvious that the present system of payment for lecturers is an expensive business, but for practical work inferior men are of little use and it is important to secure the services of men who by reason of their calling have to keep themselves up-to-date in their own particular line. It is clear that if we are to maintain the efficiency of the school we must continue to employ our present lecturers in mechanical engineering and plumbing. For the other classes, however, Mr. Fyfe reports that we can secure the whole-time services of a lecturer who would not only teach, say, twenty hours a week in the day or evening as may be required, but would also act as Assistant Superintendent of the school and relieve Mr. Fyfe of the purely routine office work in connection with the registers and records. The Engineer in question is Mr. G. Verghese—a copy of whose application and testimonials is submitted herewith. It will be seen that he has experience in electrical engineering, and I think that he would do well for the electric wiring, machine drawing and maistries (vernacular) drawing class. He would also be available for the Perambur and any other apprentice classes that may be started in the school. I recommend that he be offered an appointment on Rs. 250 per mensem for six months in the first instance. It may be considered later whether the school may be kept open for classes in the hot weather.

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8/8

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- (1)
- (2)
- (3)
- (4)
- (5)
- (6)
- (7)
- (8)

11. An estimate of the cost of these proposals is appended :— Recurring expenditure.

Lecturers' fees—

Mechanical engineering 60 evenings of 2 hours at Rs. 10 per hour.	rs.
Plumbing do. do. do.	1,200
Electric wiring do. do. do.	1,200
Machine drawing	} Full-time lecturer on Rs. 250 per mensem for six months ...
Maistris	
Perambur apprentices if included.	
Allowance to demonstrators for mechanical engineering, plumbing and electric-wiring classes ...	1,500
Allowance to assistant for the drawing classes ...	350
Store-keeper, one year, at Rs. 40 ...	80
Rent, Rs. 125 Rs. 65 per mensem for twelve months ...	480
Lights and fans ...	2,280
Cleaning charges ...	480
Two pens on Rs. 9 each per mensem ...	150
Postage ...	216
Library ...	50
Materials, mechanical engineering ...	200
Materials, plumbing ...	800
Materials, drawing ...	800
Materials, electric wiring ...	200
Furniture additions and repairs ...	300
Tools and plant ...	800
Contingencies ...	2,000
	3,000
Total ...	16,586

Non-recurring expenditure.

Furniture and apparatus for new class room ...	1,200
Drawing apparatus ...	300
Tools and plant, new classes ...	2,000
Total ...	3,500
Total requirements ...	20,086

12. The budget allotment in the current year for the Government Trade School is Rs. 16,500 of which Rs. 1,155 have already been spent. The balance required is Rs. 4,741 and this expenditure can be met from anticipated savings from the budget provision of Rs. 8,000 for furniture grant.

ENCLOSURES (1)

THE MADRAS GOVERNMENT TRADES SCHOOL.

Mechanical engineering class—proposed, elementary syllabus, 1917–18.

Theory—

- Uses of drawing board, Tee square, set squares, scale rule and instruments.
- Drawing of parallel lines with set squares.
- Dividing a line into equal parts.
- Bisecting angles.
- Describing circle or arc of circle through three given points.
- Constructing regular polygon.
- Finding true length of line from plan and elevation, uses of numbers 7854 and 3-1416.
- Preparing chisels. Different types used in shops. Grinding, hardening, tempering.
- Principle of hand-shearing machine with method of calculating pressure on cutting blade.
- Files. Different types and their uses.
- Useful tools.—Principles and practices with correct methods of handling and using. Calipers, square, bevel slot gauge.

Pattern making.—Why patterns are made? Materials used in their construction. Cores, core boxes and their uses. Tools used, their names and how used. Various timber joints with sketches and proportions. Pulley patterns, method of making arm joints, 6 and 8 arms.

The lathe and its uses, general outline of mechanism and parts. Tools used, correct method of grinding and setting same.

Forging, hardening and tempering lathe tools.

Preparing work for lathe, use of jenny callipers, centre drill. Scouring arrangements with sketches of various types of carriers.

Examples in plain turning. Speed of revolving work, use of back gear.

Screw cutting by the lathe, calculation of change wheels, simple and compound gearing, right and left hand threads, picking up threads, chasing. Single and double threads. Various types of threads with their respective features, Whitworth, square, buttress, Knuckle, etc.

Drills and drilling.—Description of machine, making of flat drills, twist drills, taper and parallel shanks, grinding and testing drills, speeds, sleeves and sockets. Marking off work for drilling.

Shaping and planing machine. Difference in construction. Tools, how ground set and used.

Practical—

Making all types of chisels, grinding, hardening and tempering. Chipping cast iron and mild steel. Control of file, draw filing.

Making callipers, squares, etc.

Pattern making—Setting out and making pattern for letter-copying press.

Moulding shop, moulding above patterns of boxes, sand, etc.

Blacksmith shop. Forging necessary parts for press, turning plain work and screw cutting.

Fitting shop, filing and fitting up copying press.

The application in a workshop of above theoretical course with practical demonstration in all cases.

(2)

GOVERNMENT TRADES SCHOOLS, MADRAS.

Proposed Mechanical Engineering Class Syllabus, 1917-18.

Advanced Theory—

Elementary Applied Mechanics.

Force. Matter. Unit of Force.

The Elements of Force.

Graphic representation of Forces.

Forces in Equilibrium.

Action and Reaction.

Resultant Forces.

Work, Unit of Work.

Work done against variable Resistance.

Diagrams of Work.

Power. Unit of Power, H.P.,

The Moment of a Force.

Principle of Moments applied to Levers.

Pressure on and reaction from the fulcrum.

Centre of gravity. The lever when its weight is taken into consideration.

Practical application of the lever, steel yard, lever safety valve, bent levers, bell crank lever, pincers.

The principle of work. Work put in, work lost, useful work. Efficiency of a machine.

Principle of work applied to a lever. Wheel and axle, winch barrel, ships capstan, etc.

Pulleys, snatch block, block and tackle, velocity ratio, actual or working advantage.

The wheel and compound axle, Weston's differential pulley block, work applied to it.

Graphic demonstration of forces in equilibrium.

Parallelogram of forces. Triangle of forces.

Struts in jib crane, struts on simple roof, inclined plane and principle of work applied to it.

Friction. Heat developed when force overcomes it. Angle of repose or friction.

Lubrication.

Advanced Theory—

- Anti friction wheels, ball bearings, work done on inclines including friction.
- Belt driving. Difference in tension.
- Brake horse-power transmitted by belts.
- Velocity ratios, open and crossed belts, fast and loose pulleys. Stepped speed cones.
- Shape of pulley face.
- Velocity ratio of two friction discs.
- Pitch surfaces and pitch circles, pitch of teeth in wheel gearing, rack and pinion, velocity ratio in wheel gearing. Principle of work applied to wheel gearing.
- Simple purchase winch or crab. Double purchase.
- Do. Wheel gearing in jib cranes.
- Screws. The spiral, helix or ideal line of screw thread. The screw viewed as an inclined plane, characteristics and conditions to be fulfilled by screw threads. Different form of screw threads. Screw coupling for Railway carriages. Single, double and treble threaded screws. Backlash in wheel and screw gearing.
- Efficiency, etc., of a combined lever, screw and pulley gear bottle screw jack.
- Screw press for balis. Screw bench vice.
- Endless screw and worm wheel, combined pulley, worm and worm wheel and with drum.

- Worm lifting gear.
- Rivets, rivet holes, and rivetting. Joints.

MANUFACTURE AND PROPERTIES OF METALS.

- Cast iron.—Smelting, composition, how graded.
- Proportions of elements—Sulphur, manganese, phosphorous, silicon, carbon. Tests, tensile strength.
- Description and sketches of blast furnace.
- Method of charging and tapping.
- Wrought iron.—How produced, description and sketches of puddling furnace. Puddling, rolling, composition, tests, tensile strength.
- Steel.—Mild steel, Tool steel and Cast steel.

Types. Bessemer, Siemens Martin, Cementation processes.

Advanced Theory—

- Bessemer steel, process of manufacture, with sketch and description of Bessemer Converter.
- Siemens Martin steel, process of manufacture with sketch and description of open hearth furnace.
- Cementation process of manufacture, with sketch and description of furnace, formation of blister steel, Cast steel, Shear steel.
- Tensile strength of steel.
- Various metals and Alloys in general use.—Copper, tin, zinc lead, how obtained and various process of manufacture, brass, muntz-metal, naval brass, yellow brass, bronzes gun-metal, phosphor bronze, manganese bronze.
- Various mixtures and properties.

Practical—

- Advanced whipping and filing.
- Cutting keyways in shaft and pulley by hand.
- Use of file.
- Making gauges for fine measurements.
- Forging simple bolts and nuts.
- Piston rings of different types.
- Brasses and Bearings, plain pedestal, cap bearings. Half brasses from castings.
- White metal bearings. Bedding in.
- Oil Grooves. Footstep bearings.
- Coupling rod brasses.
- Pulleys wheels and keys.
- Key proportions. Forging and filing up same.
- Types of keys.
- Rivetting. Canlking. Lap joints.
- Advanced screw cutting in the Lathe.
- Advanced pattern making.
- Advanced moulding.

(3)

Department of Industries—Plumbing Syllabus—Theory—first year.

Water-supply.—Arrangement of service pipes in buildings. Quality and quantity of Madras water, and its action upon pipes and fittings. Connection of pipes to mains; methods of fixing pipes; house cisterns, their construction and fittings; valves, taps, flushing tanks, stop and drain cocks, warning pipes; causes of noises in pipes and ball valves tracing leakage.

Joints.—Methods of jointing the various metal pipes. Joints most suitable for various pipes.

Alloys.—Solders—hard and soft—their uses, preparation and methods of testing.

By-Laws.—By-laws relating to sanitary installations and plumbing, particularly those adopted by the Madras Corporation.

Practical work.

Arrangement of pipes in buildings; with services and connection to mains; drainage connections to sewers.

Fixing taps.—Cisterns, valves, flushing tanks and other fittings.

Jointing.—Jointing of cast iron and lead pipes.

Soldering.—Use of different kinds of solders and making "wipe joints."

Plumbing tools.—Their correct names, uses and maintenance.

Faults and leaks.—Tracing and remedying them.

Workshop worries.—The ordinary daily difficulties which occur in plumbing and how to overcome them.

(4)

Department of Industries—Plumbing Syllabus—Theory—second year.

House drainage.—Methods of laying drains, gradients, and sizes, concrete bedding, etc. Chambers—materials, construction, sizes. Covers and method of fixing traps, gullies, disconnecting, P.S.Q. unsealing of taps, causes, and how to prevent same.

Ventilation of drains.—Fresh air inlets. Automatic flush tanks, duties and construction.

Sanitary appliances.—Water closets, baths, lavatories, sinks, etc.; their fittings and method of fixing; their relative merits and defects.

Soil and waste pipes.—General arrangement and methods of support. Trapping and ventilating. Sizes of pipes. Jointing material used in connection with drains.

Soil pipe branches. Inspection, brambets, inspection bends.

Lead soil pipes and bends with inspection doors.

Practical work.

Laying and jointing drains; use of boning rods.

Fixing water closets, baths, sinks, etc.

Setting and fixing waste pipes.

Wiping joints on 4" soil pipes and bends.

Plans and estimates.—Application of by-laws and the preparation of proper plans and estimates for submission to the Corporation.

Testing, etc.—Testing work.

Billing for work after completion.

(5)

Application—from G. VERGHESE, Engineer, Macbwa Buildings, Delisle Road, P.O. Byculia, Bombay.

To—the Director of Industries, Madras (through Mr. FYFE, Inspector of Industrial Schools).

Dated—the

I beg to apply for the Assistant Superintendent's post in the Government Trades School which is going to be opened in Madras during this year.

I have had 18 years' practical experience in mechanical and electrical engineering in several parts of India; since I underwent through a three years' theoretical and practical training in the Victoria Jubilee Technical Institute (The Central Technological Institute—now designated) at Bombay—I hold the "Diploma of Licentiate in Mechanical Engineering" from this institute, from which institution I passed out in 1903. The theoretical course was in Elementary Steam, Advanced Steam, Applied Mechanics, Machine Drawing, Workshop Appliances, Heat, Sound, Light, Electricity and Laboratory training. During this three years' course, I have undergone through a six months' practical training in each of the following different shops of the institute, viz., Pattern making, Foundry, Smithy, Turning (Lathes), Machine tools and Fittings.

the boys, but the department can accept no responsibility for getting the boys to the school which will be situated in Georgetown. Ordinarily a small fee is charged for admission to classes of this kind, and the fee is refunded to all boys who attend 80 per cent of the lectures. I am willing however to waive the fee in the case of your apprentices on the understanding that boys who are irregular in attendance are dealt with departmentally.

5. The course of instruction and the detailed syllabuses will be drawn up in consultation with yourself. As at present advised, however, I am inclined to think that instruction might be suitably given in the following subjects, the general idea being to turn out a class of boys capable of becoming either draughtsmen or chargemen or foremen:—

(1) Mechanical drawing commencing with the use of a drawing board and instruments and working up to finished pencil drawings of nuts, bolts, screws and small fittings borrowed from the Perambur Workshop or Store, special attention being devoted to accurate drawing from the students' own freehand dimensioned sketches.

(2) Elementary mathematics—measurements of areas and volumes, graphs and graphical calculations.

(3) Elementary mechanics—theory of levers, pulleys and simple mechanical devices.

(4) Simple lectures on the characteristics of metals, alloys, fluxes, etc.

(5) Practical demonstrations on any starting a smithy fire, and any other practical demonstration work which may with advantage be undertaken with the equipment in the school.

6. I have the honour to enquire whether the scheme thus outlined meets with your approval, and if so, whether you would let me know

(1) how many apprentices you are prepared to send to the school, and

(2) how many days a week you would like the class or classes to meet.

The scheme of course is only an outline one, and details can be filled in later.

7. I should be grateful for an early reply.

(2)
Letter—from the Locomotive and Carriage Superintendent, Perambur Railway Works.

To—the Director of Industries, Madras.

Dated—the 17th July 1917.

No.—L. 1022.

I have the honour to acknowledge receipt of your letter quoted above and to state that the scheme outlined therein would appear suitable.

2. Arrangements could be made to send 20 apprentices from the Perambur Workshops on Tuesdays and Fridays.

3. This would mean the class putting in two attendances of two hours each every week till the course is completed and that the class would meet two days a week.

4. The hours of instruction as proposed by you, viz., 2 to 4 p.m., would suit very well at present, but if any alterations in the train service necessitates some change in the hours named, it is presumed there will be no difficulty in making a slight alteration in the hours of attendance.

Order—No. 997, Home (Education), dated the 31st July 1917.

The Government approve the proposals submitted by the Officer in charge of the Department of Industries for the opening of classes in the Madras Trades School in the current official year.

2. Sanction is accorded to the employment in the school of Mr. G. Verghese as a whole-time lecturer on a salary of Rs. 250 per mensem for a period of six months. The proposal to employ a storekeeper on Rs. 40 per mensem and two peons on Rs. 9 each per mensem for a period of one year is approved on the understanding that their services should be dispensed with as soon as the work permits. The peons will be ineligible for grain compensation allowance.

3. The part-time lecturers in mechanical engineering and plumbing will each be paid a fee at the rate of Rs. 10 per hour, subject to a maximum of Rs. 20 per day and of Rs. 1,200 for the whole course.

4. The Government sanction the proposal to hire for a period of one year an additional building for the accommodation of the classes at a monthly rent of Rs. 65.

5. The estimates for allowances to demonstrators and to the assistant for the drawing classes and for the other items of recurring and non-recurring expenditure provided for in paragraph 11 of the first of the letters read above are also approved. The expenditure on account of the school in the current year will be met from the sources indicated in paragraph 12 of that letter.

6. A report on the working of the school should be submitted at the termination of the course.

(True Extract)

R. RAMACHANDRA RAO,
Secretary to Government.

To the Officer in charge of the Department of Industries,
Financial Department.

1101 xdel = 10. (MONTAGUE) and 1100 102

Final approval
24/8/17
24/8/17

NOTES CONNECTED WITH G.O. No. 997, HOME (EDUCATION),
DATED 31st JULY 1917

[SUBJECT.—Proposals for the working of the Madras Trades School
in the cold weather of 1917-18.]

Previous papers:		
G.O.	776,	Educational, 24th Aug. 1912
"	1092,	Home (Education), 17th Oct.
"	1232	" 22nd Nov. 1916
"	728	" 2nd June 1917

HOME (EDUCATION) DEPARTMENT.
From the Officer in charge of the Department of Industry, No. G. Cur. 116,
dated 9th June 1917.

Please see G.O. No. 1092, Home (Education), dated the 17th October 1916, in which the Government approved the proposals for starting trades classes in plumbing and mechanical engineering for a period of six months at Madras. The report on the working of these classes will be found in G.O. No. 728, Home (Education), dated the 2nd June 1917. As the experiment proved on the whole a success, Mr. Innes submits proposals for continuing the existing classes and for opening new classes in the ensuing cold weather. He proposes to have classes in the following subjects:—

- (1) mechanical engineering;
- (2) plumbing;
- (3) machine drawing;
- (4) electric wiring; and
- (5) maistries drawing class (vernacular).

He also hopes to submit proposals later on for opening a class for apprentices who are working in the Perambur workshops.

The necessity for providing instruction in a large number of subjects in the Madras Trades School was urged by the committee which was appointed by the Government in 1914, to work out details connected with the school (paragraph 5, page 13 of G.O. No. 1092, dated 17th October 1916). Mr. Innes has selected only a few subjects, for technical instruction in which there is clear demand in the city.

E.A.H.—20-6-17. The Government may, it is submitted, approve the subjects selected by him.

2. In mechanical engineering and plumbing Mr. Innes proposes to have two classes, one for students who passed out of the classes held in the last session and the other for new admissions. From the results of the examinations of the students

M. Ann

M. Ann

who underwent training in the last session, it will be seen that a further course is necessary for those students if they should become efficient workmen (pages 2 and 3 of G.O. No. 728, dated 2nd June 1917). The proposal to have an advanced class in addition to the first year (or elementary) class in the two subjects mentioned may therefore be accepted.

E.A.H.—20-6-17.

3. *Accommodation.*—As the building already rented for the school does not contain accommodation for all the new classes proposed, Mr. Innes states that he has selected a large upstairs hall in another house to be rented at Rs. 65 a month. The

E.A.H.—20-6-17.

renting of this additional accommodation may be sanctioned.

4. *Establishment.*—As regards lecturers Mr. Innes proposes to engage the services of Messrs. Lockley and Hillier who were employed in the last session also, for giving instruction in plumbing and mechanical engineering. According to the time-table in paragraph 7 of Mr. Innes' letter each of these lecturers will have two hours' work a day on three evenings in a week. The remuneration sanctioned for them last year was Rs. 15 for one hour's lecture (paragraph 4, page 22 of G.O. No. 1092, dated 17th October 1916). Mr. Innes now proposes to allow Rs. 20 for

E.A.H.—20-6-17.

each two-hour period of an evening. This rate does not seem to be high and may be approved.

The monthly remuneration to each of the two gentlemen will at this rate amount to about Rs. 240 *. As the

	RS.
* For a two-hour period	20
For 3 two-hour periods or one week ..	60
For one month	240

If the remuneration is Rs. 200 or above the sanction of the Government of India may be necessary.

E.A.H.—20-6-17.

mensem, the sanction of the Government of India may perhaps have to be obtained to their employment under article 773 (a) of the Civil Account Code. It is not however quite clear whether this is necessary as they are to be only part-time employees and the Financial Department may be requested to advise on the point.

5. As regards the lecturer for the remaining classes, Mr. Innes recommends the employment of a full-time assistant, one Mr. G. Verghese, on Rs. 250 per mensem for a period of six months. The necessity for a full-time assistant is explained in paragraph 10 of page 6 of current file. According to the time-table in paragraph 9 of Mr. Innes' letter the assistant will have only seven hours' work a week. But if the proposed class for apprentices in Perambur workshops is also opened he may have more work. According to Mr. Fyfe, the assistant can be given 20 hours' teaching work. It is not clear how this will be the case unless several additional classes are opened in the mornings or afternoons. It is true that there may be other work for the assistant, such as, the maintenance of records and registers and the carrying on of correspondence. It is for orders whether the proposal to have a full-time assistant may be approved. If Mr. Verghese is paid at the rate of Rs. 10 per hour, he will earn a remuneration of Rs. (70 × 20) 1,400 in all. His fixed pay for six months comes to Rs. 1,500.

6. Mr. Verghese is a licentiate in mechanical engineering of the Bombay Victoria Technical Institute and seems to have gained considerable practical experience in various places. The pay

E.A.H.—20-6-17.

proposed for him, viz., Rs. 250 may, it is submitted, be approved.

7. In the estimate of recurring expenditure on page 7 of current file, provision is made, as was done last year, for the employment of demonstrators in each subject to assist the lecturers and for a storekeeper on Rs. 40. These may be allowed. As

M. Innes

there will be classes in two different buildings it is proposed to have two peons on Rs. 9 each instead of one as in the last year. This may also be approved. The

E.A.H.—20-6-17.

other items provided for in the estimate of recurring expenditure do not seem to

call for remarks nor do the items of non-recurring expenditure provided for by Mr. Innes.

8. *Cost of the scheme.*—In calculating the cost of the scheme during the current year Mr. Innes takes into account the charges for a whole year on account of the employment of a storekeeper on Rs. 40 per mensem and two peons on Rs. 9 each per mensem and the renting of an additional house (on Rs. 65 a month). As the school is to be opened only in the cold weather of this year and as the classes are to extend only for about 20 weeks it is not clear why a full year's provision is made for the items mentioned above. Perhaps Mr. Innes may be consulted u.o. as to whether six months' charges will not be sufficient. If necessary, a watchman may be employed to guard the existing building till the school is reopened.

9. As regards the levy of fees it is presumed that the procedure adopted last year of collecting small fees from the pupils at the beginning of the course and refunding them at the end of the course to those who regularly attended the classes will be allowed in this year also.—Paragraph 2, page 2 of G.O. No. 1232, dated 22nd November 1916.

10. The file may be sent to Mr. Innes u.o. for remarks with reference to paragraph 8 above.

S.K.—18-6-17.

N.K.—19-6-17.

Mr. Innes' proposals seem to be sound and may be generally approved; of the points raised in the note above, the rate of pay to the lecturer on plumbing and mechanical engineering calls for comment. Though I do not think that the rate proposed by Mr. Innes is high, yet it is conceivable that it might come cheaper and be more satisfactory to give each a fixed monthly stipend of, say, Rs. 200. If the stipend is fixed at Rs. 200 or less a reference to India will be avoided.

As regards paragraph 8 above the school will presumably be continued after an interval of time and the staff, building, etc., will continue to be required. It will be difficult to dispense with the staff for that comparatively short time and also to retain the building without paying rent for it.

E. A. HARVEY—20-6-17.

Mr. Innes u.o.

P. R. [AJAGOPALA ACHARIYAR]—21-6-17.

OFFICE OF THE DIRECTOR OF ~~Public~~ INDUSTRIES:

There is no objection to offering Messrs. Lockley and Hillier Rs. 200 a month (subject to a maximum of Rs. 1,200 for the whole course) instead of Rs. 10 per hour, but I don't see that any advantage is gained thereby.

2. If a reference to the Government of India is adjudged necessary by the Financial Department, perhaps Government could see their way to making the appointments in anticipation of formal sanction, as the rule permits. I want to engage the second room, issue notices and make arrangements generally for opening the classes in September and there is not much time left.

3. It is proposed to engage Mr. Verghese for 20 hours teaching work a week so as to have him available for any other classes that may be available. For the moment he will have only 7 hours' teaching a week or 11 hours if the Perambur classes are arranged. In any case we could not get a man of his attainments for less than Rs. 250 per mensem and it is well to make the agreement with him cover ~~the~~ contingencies.

fatwa

4. The storekeeper and peon won't be required for all the year; on the other hand some charges in respect of them have already been incurred against this year's budget allotment, and having regard to examinations, etc., it is difficult to say exactly for how many months they will be required. Perhaps the appointments might be sanctioned for a year on the understanding that the men should be got rid of as soon as work permits.

5. As regards the buildings, they must be rented for a whole year. Otherwise, as in the case of houses at Madras, the landlords would not let them.

6. I should be grateful for early orders.

C. A. INNES—10-7-17.

HOME (EDUCATION) DEPARTMENT

As regards remuneration to Messrs. Lockley and Hillier the Financial Department may, it is submitted, be consulted.

2. The proposal to employ Mr. Verghese as full time assistant on Rs. 250 per mensem may be accepted.

3. In the circumstances explained by Mr. Innes the employment of the storekeeper and peons for a whole year may be approved on the understanding that their services should be dispensed with as soon as the work permits. The proposal to rent the houses for one year may also be sanctioned.

4. The file may be sent to the Financial Department for remarks.

S.K.—13-7-17.

N.K.—13-7-17.

E. A. HARVEY—14-7-17.

R. RAMACHANDRA RAO—14-7-17.

FINANCIAL DEPARTMENT

The extra cost involved in the proposal of the Director of Industries to hold certain classes in the Government Trades School during the cold weather of 1917-18 is shown below:—

Recurring items.

	Extra cost, RS.
(a) One lecturer on Rs. 250 in electric wiring, etc., for six months ...	1,500
(b) Allowances to two part-time lecturers at Rs. 10 per hour ...	2,400
(c) Allowances to demonstrators and to the assistant in drawing classes ...	430
(d) One storekeeper (40) for twelve months ...	480
(e) Two peons (9) for twelve months ...	216
(f) House-rent (190) for twelve months ...	2,280
(g) Materials ...	2,800
(h) Furniture (additions and repairs) tools and plant and contingencies.	6,680
	16,586

Non-recurring charges.

(i) Furniture (for new class), apparatus and tools and plant ...	3,500
Total ...	20,086

The cost of holding classes (up to the first May 1917) in the Trades School during 1916-17 was Rs. 8,638 (page 3 of G.O. No. 728, Home (Education), dated 2nd June 1917). The large increase of expenditure proposed to be incurred during the coming season is due to the fact that, while in last year only classes in elementary mechanical engineering and elementary plumbing were held, it is proposed to hold during the next session many other classes in addition. The holding of classes on the increased scale, which the Director of Industries considers necessary and which the Home Department has approved, may it is submitted, be accepted. It will be seen from paragraph 10 of the Director's letter on page 3 of G.O. No. 728, Home (Education), dated 2nd June 1917 that the classes held in 1916-17 were a success. The details of the expenditure proposed are examined below.

NOTES TO G.O. No. 997, HOME (EDUCATION), 31st JULY 1917

2. Item (a).—One whole-time lecturer on Rs. 250 per mensem for six months—
Director's letter on page 8 ante and paragraphs 5 and 6 of Home (Education) note on page 6 ante, and paragraph 3 of Director's note on page 4 ante. The proposed employment of Mr. Verghese may, it is submitted, be agreed to in Financial. The salary of Rs. 250 per mensem does not appear to be high and may be accepted.

L.E.K.—24-7-17.

L.D.—25-7-17.

3. Item (b).—Part-time lecturers—
Secretary's note 2 ante and paragraphs 1-2 of the Director's note on page 1 ante. During the last session, the part-time lecturers were paid at the rate of Rs. 15 per hour. At the rates now proposed, viz., Rs. 20 for a day of two hour lectures and for three days in a week subject to an aggregate total fee of Rs. 1,200 for twenty weeks it is likely that the two lecturers (Messrs. Lockley and Hillier) may, in any one month, draw more than Rs. 200 each. The Home Department accordingly raise the question of the applicability of article 773 (a) of the Civil Account Code, Volume II, in their case. Please see Home Under Secretary's note and the Director's note on page 8-10 ante. If article 773 (a) of the Civil Account Code is held to be applicable to the present case, it is submitted that even if their monthly remuneration is fixed at Rs. 200 each, a reference to the Government of India is necessary.

Article 773 (a) of the Civil Account Code refers to regular "officers" carrying salary of Rs. 200 and upwards, i.e., appointments both temporary and permanent. In the present case, two private gentlemen are to be paid fees on a fixed scale for some services to be performed by them and it is not clear whether the article is applicable to such cases. In the case of Mr. Luber, Pencil Expert, disposed of in G.O. Nos. 98-99, Educational, dated 1st February 1915, he was a whole-time officer working in the Department of Industries on daily wages of Rs. 10 and the Government of India's sanction was rightly obtained to his employment. In the present case the two men are not whole-time officers of Government. Article 773 (a) is, however, an audit rule. It is possible that the Accountant-General will stretch the

Personally I don't think the article applies. The payment is really in the shape of fees or honoraria. The Accountant-General may be left to object.

L.E.K.—24-7-17.

L.D.—25-7-17.

As regards the rate of remuneration to the lecturers, it may, it is submitted, be fixed at Rs. 10 per hour, subject to a maximum of Rs. 1,200 each for the whole course, as proposed by Mr. Innes, as it is stated that there is no advantage in imposing a monthly limit of Rs. 200.

L.E.K.—24-7-17.

L.D.—25-7-17.

4. The other items call for no remarks and the proposals may be accepted. The peons may be declared ineligible for grain compensation allowance.

5. Provision of funds.—The Director of Industries has indicated the source from which the extra cost that may be incurred in the current year will be met.

T.B.N.N.—23-7-17.

A.S.—23-7-17.

L. E. KERSHAW—24-7-17.

L. DAVIDSON—25-7-17.

HOME (EDUCATION) DEPARTMENT.

Draft please.

E. A. HARVEY—26-7-17.

A draft order is submitted for approval.

2. Mr. Innes has since submitted his proposals for the opening of classes in the Trades school for Perambur apprentices. The proposals do not involve any special additional expenditure. It may, however, be noted here that when, in 1912, a committee was appointed to consider the scheme for the establishment of state apprentices in Madras and for the opening of a technical school in connection therewith, the representative of the Perambur Railway Workshops on the committee stated that the company had decided to establish a separate technical school for their apprentices and that therefore they would not take an active part in the matter of establishing technical schools elsewhere (please see page 7 of G.O. No. 776, dated 24th August 1912). Apparently the company has not established a separate school for their employees as was proposed in 1912.

3. Mr. Innes proposes to waive the usual fee of Rs. 3 in the case of all Perambur apprentices and to leave such pupils as are remiss in attendance to be dealt with departmentally. He does not, however, seek the specific sanction of Government to this course. If such is considered necessary, he will no doubt come up to Government later on.

S.K.—27-7-17.

N.K.—28-7-17.

Issue, as the matter is urgent. After issue, submit to Honourable Member. (Industries).

E. A. HARVEY—30-7-17.

R. RAMACHANDRA RAO—31-7-17.

[G.O. No. 997, Home (Education), dated 31st July 1917.]

Thanks.

P. R. [AJAGOPALA ACHARIYAR]—8-8-17.

Scott, II-38-1-17.

ORDINARY.

PRESS SLIP

PREFERENCE.

URGENT (a).

Current No. dated 191

G.O. No. 997 dated 31-7-191

Number of MS. pages sent { Correspondence.....
(b)
Notes.....

Brief subject. *Please see 477*

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Total ..		12		

INSTRUCTIONS FOR THE SECRETARIAT.

(a) If a paper is marked to be printed urgently, the Superintendent of the section concerned should sign the Press slip. The Superintendent should exercise a careful discretion in the matter.

(b) Each letter, memorandum, or order, or set of orders, in the file of correspondence should be headed in succession with the Roman numeral I, II, III, etc., the number being written in red ink or blue chalk above the item. The particular papers to be printed in the special issue-copies should be indicated by the Roman numeral (I, II, etc.) by which that item has been headed in the correspondence file. All matter, including marginal remarks or references, to be printed should be written in ink and matter which should not be printed should be encircled. Initials and signatures that are not quite legible should be re-written distinctly.

(b) For rules regarding printing of notes, see rule 815 of the office Manual.

(c) The number of copies and the details of distribution should be filled in by the Superintendent or Referencer concerned.

(d) In the absence of special instructions to the Press to keep matter standing for a specified period, ordinary papers of 8 pages and under will be kept standing for one week, and larger papers for two weeks only. The type of notes and of all confidential papers is distributed immediately after striking.

(e) This slip, properly and completely filled in, should accompany every paper sent to Press; it will be returned by the Press when proofs are furnished; it should be sent to the Press when a call is made for revised proofs or when a corrected proof is sent for striking. When finally returned by Press it should be filed with the original order or letter.

INSTRUCTIONS FOR THE PRESS.

(a) If, in the opinion of the Superintendent of the Press, a paper has been marked urgent unnecessarily, he should send the Press slip to the Registrar with a remark to that effect.

(b) Unless a note to the contrary is made against the matter, pencil entries should not be printed. The Superintendent of the Press may bring to the notice of the Registrar any instance of incomplete or careless editing.

(c) Signature copies of letters to the Secretary of State or to the Government of India should be printed on hand-made paper.

(d) This slip should be returned by the Press to the Secretariat when proofs are furnished; it will be sent back to the Press when proofs are returned corrected and should be finally returned to the Secretariat when struck-off copies are supplied.

(e) The names of the Secretary and Members should be printed in full when they occur on the right hand side, only the first time when they appear on the left side, the initials alone being printed later.

Copies distributed on (Press Clerk).

Copies distributed on (Press Despatcher).

† To be initialled and dated.

TO PRESS, MADRAS CITY.

A
Please send proof in duplicate. The papers have been carefully edited.

B
Proof returned corrected. Please strike off and send number of copies as indicated.

C
As the matter is clear manuscript and has been carefully edited, (b) proof need not be sent. Please print and supply number of copies as indicated.

Type may be released after usual interval at once.

Type may be released after usual interval.

Reference.
Clerk.

Reference.
Clerk.

Reference.
Clerk.

Supdt.

Supdt.

Supdt.

SPECIAL INSTRUCTIONS.

TO BE FILLED IN BY THE PRESS.

Diary.	Initials of Press official.
Received in Press on.....	
First proof furnished on.....	
Call for revised proof received on.....	
Revised proof furnished on.....	
Corrected proof received for striking on.....	
Final copies supplied on.....	

Account of copies.	Complete copies.	Notes.	Issue copies.	Special E.T. edition.
Supplied to Secretariat for Record.....				
" " " Issue.....				
" " " for Extra E.T. copies to supply requisitions for sale to the public.				4
For Volumes.....				
For supply to newspapers and institutions admitted to the privileges of the E.T.				
Total ...				