Secdt. II-27—60,004—17-11-48.

Edn. (1940) Department.

Ms. SERIES.

G.O. NO. 704 Edn.

Dated 3-3-50.

(76)

[Despatch Abstract.]

Technical edn.- Scientific Manpower Committee's recommendations- changes in the curriculum of Titles. etc.- Papers recorded.

Back Papers.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

Further Papers.

G.O.	No.	Department.	Date.	G O.	No.	Department.	Date.

SECRET.

draft-A 8/3

SECRETARY TO GOVERNMENT OF INDIA
10048
10 FEB 1948
EDUCATION, MEDICAL AND PUBLIC HEALTH DEPTS.

No.F.21-64/47-E.III(P).
GOVERNMENT OF INDIA.
MINISTRY OF EDUCATION.

NEW DELHI, the 5th February, 1948.

From

Sir Shanti Swarup Bhatnagar, F.R.S.,
Secretary to the Government of India.

To

The Secretary to the Government of Madras, Deptt. of Education, Madras.

Sir,

I am directed to invite attention to the recommendations regarding certain changes in the curricula of universities and the development of existing facilities for scientific and technical study made by the Scientific Manpower Committee in their interim report (vide Page 1 para 4, Page 2 paras 5,6,7, Page 4 paras 14,15, Page 5 paras 16,17,18,19,20, Page 8 paras 32,33, Page 9 paras 35, Page 10 paras 38, 39, Page 12 paras 53, 55 Page 52 para on the Agricultural Colleges & Universities) a copy of which is forwarded herewith.

I am to request the Provincial Government in so far as it concerns them may please consider these recommendations and take necessary steps to implement such of recommendations as may be acceptable to them and furnish the Government of India with copies of the schemes which they might propose to initiate for the purpose.

I am to add that the Government of India are in general agreement with the committees recommendations regarding the introduction of necessary changes in the curricula of universities and are of the opinion that the facilities available in existing institutions for scientific and technical study should be developed and enlarged, paying special attention to certain priorities regarding the class of scientists and technicians needed immediately and that the double shift system should be employed for this purpose whenever possible.

I have the honour to be,
Sir,
Your most obedient servant,

G.K. Chandiramani

(G.K.CHANDIRAMANI)
for Secretary.

SOOD

2/

GOVERNMENT.

No.F.21-64/47-E.III(P).
GOVERNMENT OF INDIA.
MINISTRY OF EDUCATION.

NEW DELHI, the 5-6 February, 1948.

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I have the honour to be,
Sir,
Your most obedient servant,

(S.K.CHANDRAMANI)
for Secretary.

3/

Edn and P.H Dept

Letter. No. 10048-1/48 A Edn. d. 15-5-48

Ref

To

The Registrar, University of Madras
Andhra University
Annamalai University

Sir,

Scientific Man Power Committee of the Govt of India - Interim Report.

I am directed to invite your attention to paras 6, and 53 of the report mentioned above and to request that the University will be so good as to offer its remarks on the recommendations contained therein.

I am also to invite your attention to paras 14 and 15 (i) of the report and to enquire whether the suggestions of the Committee in the latter para can be given effect to in the University College (Cotem 5)
Dept of Eng. and Technology in the University (Cotem 10)

and if so to forward proposals for claiming from the Govt of India the grants sanctioned against ~~that~~ item

Please see pages 5, 8 & 21 of the relevant notes.

may for the direction
Amanda

Ref

Memo. No. 10048-2/48 A Edn. d. 15-5-48

Scientific Man Power Committee of the Govt. of India - Interim Report

The attention of the D.P.I is invited to paras 6, 17(iii) and 19(i) of the report mentioned above and he is requested

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on the recommendations contained therein.

The attention of the Director is invited to paras 14 and 15(1) of the report and he is requested to state whether the suggestion of the Committee in the latter para can be given effect to in the Eng College, Guindy, (item 9) and if so to forward proposals to Govt for claiming from the Govt of India the grant sanctioned against that item.

¶ 7-8 of the orders noted

The Director is also requested to offer his remarks on the recommendation of the Committee in para 53 of the report that technical institutions which impart graduate and post graduate training in Mechanical and Electrical Eng. should be able to take up for example, Communications Eng, Chemical Eng. and other allied branches also.

¶ 21 of the orders noted

DPM 14/5/48 — MY 13/5/48 — To The D.P.S.

MY 12/5/48

III

Memo — Scientific Man Power Committee of the Govt. of India - Interim Report

¶ 15 of the orders noted

The attention of the S.E.(Fuel) is invited to para 19 (V) of the report mentioned above and he is requested to offer his remarks on the recommendations contained therein

DPM 14/5/48 — MY 13/5/48 — To The S.E.(Fuel)

Recd

5

UNIVERSITY OF MADRAS.

No. A. 2102

From

To

The Registrar,
University of Madras.

The Secretary to Government,
Education and Public Health
Department,
Fort St.George, Madras.

University Buildings,
Chepauk, Madras,

ASST. SECRETARY TO GOVERNMENT EDUCATION AND PUBLIC HEALTH DEPT. 27 MAY 1948

Sir,

Sub: Scientific Man Power Committee - Interim Report.

With reference to your letter No.10048-1/48,A.Edn. dated the 15th May 1948, I have the honour to inform you that the Syndicate considered this matter in connection with a reference from the Government of India on this report and has sent the following reply.(vide copy of the letter sent).

Your obedient servant,

R. Rangarao
AG. REGISTRAR.

39039

E.F.H.(1)

The file on the subject has been sent to Depts. 2 & 3 & return may be awaited.

SSE/28/5/

28.5.48 — 28/5/48 — DPM 28/5/48

¶ 3 ante

It is requested that all communications should be addressed to The Registrar, University of Madras, Triplicane P. O., Madras, and not to any person by name.

UNIVERSITY OF MADRAS.

No. A 2101

26 MAY 1948

UNIVERSITY BUILDINGS,
CHEPAUK, MADRAS.

Enclosures.

FROM

THE REGISTRAR,
of
University of Madras.

To

The Secretary to Government of India,
Ministry of Education,
New Delhi.

Sir,

Ref: Your letter No.F.21-64/47-E. III(F) dated the 5th February 1948 - Interim report of the Scientific Manpower Committee.

- - -

I have the honour to inform you that the Syndicate considered your communication and has resolved as follows with reference to the recommendations contained in the several paragraphs in the report referred to in your letter:--

Para 4 - Double Shift: The University has already considered this question and come to the decision that it was impracticable in any College and more particularly in Engineering Colleges, as the number of qualified hands available for teaching is restricted and it is found difficult to get persons duly qualified and with experience even for the present numbers. The scheme of expansion of Engineering Colleges by the Government of Madras has opened out four more Engineering Colleges within the last three years, and has made this problem even more difficult. The University is not in a position to consider the suggestion, nor is it necessary in view of the number of Colleges that have been opened within the last three years.

Para 5. Technical High Schools - The University understands that the Government is contemplating the opening of Technical High Schools and commends assistance in this direction towards their speedy establishment in sufficient numbers.

Para 6 - Higher Scientific Education - At the present time, there are few Colleges offering Honours courses in the Science subjects, while the University has departments of Zoology, Botany, Biochemistry and a College of Technology. Schemes have been submitted for the expansion of the activities of the Departments of the University so as to absorb more trainees and to turn out a largernumber of those trained in the higher branches of Science. The Unive sity invites the attention of the Central Government to the proposals submitted, copies enclosed, and would request the Central Government be pleased to afford suitable financial and other assistance to expand these post-graduate departments.

Para 7 - Geological Education - The University has already emphasised the need for encouraging the study of Geology as a subject. There is at present only one College that is affiliated in Honours course in Geology. The University invites the attention of the Government to a memorandum submitted on this subject, a copy of which is enclosed (Memorandum on Dr.West's report).

Para 14 - Short-term Programme - As regards the suggestions for the short-term programme, it has already been stated that the double shift system is impracticable. A three-year Degree course in Engineering was tried in the University during the period of War for three years, and it was found exceedingly difficult to compress the subjects of study with the practical work in this short period. The health of the students did not permit of this intensive course in this country where the climate is so trying. The University is unable for this and for other reasons already stated to fall in with the suggestions for a three-year course.

As regards the use of the University Departments in the sciences, the University will always be glad to co-operate with the Centre.

Para 15 - As regards the recommendation for the introduction of intensive training courses for B.Sc. and Engineering [illegible]

ngineering, the University will be glad to cooperate with other niversities and to utilise its own resources wherever practicable for such intensive work.

Flexibility in the curricula of studies - This University is always anxious to examine the curricula of studies in the light of modern requirements and will be glad to consider any suggestions from authorities to improve the curricula of studies. The Main difficulty will be to implement these ideas either for lack of equipment or proper personnel.

This University entirely agrees with the suggestion made that to expand and improve the existing facilities available for scientific training in all branches of science, it is necessary that a certain amount of latitude should be given to the Universities concerned by giving block grants, which could be utilised for these purposes. A great advantage of the block grant is that it will not lapse to the Government, and a planned method of development could be contemplated by the Universities concerned so that within the course of a few years new branches of study and new courses in existing departments could be opened out as and when facilities are made available.

I shall be glad if you will kindly let me know of the further action taken in this matter.

Your obedient servant,

R. Rhisdarmel

Ag.REGISTRAR.

Copy to the Secretary, Inter-University Board, of India, New Delhi, for information.

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UNIVERSITY OF MADRAS

Copy of letter No.A.5591 dated the 10th December 1945 from the Registrar, University of Madras to the Deputy Secretary to Government of India, Department of Labour, New Delhi.

Sub: Improvement of Geological Faculty in the Indian Universities

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With reference to your letter No.M.200 (46) dated the 15th October 1945 forwarding certain recommendations made and tentative proposals submitted to Government on the above subject and requesting the views of the University on the various matter dealt with therein, I have the honour by direction, to inform you that the Syndicate considered the matter with the assistance of a special Committee and has resolved to communicate to you the following:--

I. Summary of conclusions arrived at by Dr.West.

(1) The University is in favour of the proposal that Geologists should be given further training

(2) The University recommends that the training should be giv camps or in the Geological Survey, and for this purpose t recommend that there should be one or more camps in India. The necessity for sending students abroad for further tra should always be kept in view and this may be done after say a couple of years' training in the Geological Survey when an opportunity had been obtained of knowing the ca bilities of the selected men.

(3) This requires no remarks.

(4) The Madras University has a B.Sc.Honours course in Geol and is in entire agreement with the suggestion that thi three year's Honours course should be considered equal the M.Sc. of other Universities.

(5) This point has been already dealt with in (2) above.

(6) The University agrees. Physics and Zoology Graduates n have an applied training given to them before being se and it would appear that Physics and Zoology Gradua Geology Subsidiary might be suitable students for purpose.

(7) -(10) The University proposes to remodel its cou bringing in such improvements as may be considered

II. Interim Report of Dr.Parija Committee.

(i) Length of the course. The University is in agree proposal that there should be a three year's Hono and this practice already prevails in this Unive could be introduced into the Intermediate course Science.

The present two and three years' course respectively should remain.

Practical work should be introduced i them in line with modern geological t with [illegible] for the [illegible] should not pass or Honours, insisted upo

(ii) Length of M.Sc.Course. The University is in agreement with this.

The University is prepared to consider the recommendations of the training centre of the Geological Survey of India, when this has been fully equipped for such work; and to send students for post-graduate training.

(iii) Post-M.Sc.Work. This University has already got a Department in the Presidency College, Madras, for post-graduate work in Geology.

Staff: The University is in general agreement with the Committee with regard to proposals of scales of pay, subject to such modifications as may be required by local conditions.

The University is in agreement with the limits suggested regarding the strength of classes, but it should be left to each University to decide how many students should be taken these points in view.

(iv) The University is in agreement with the policy of financial aid proposed in para IV.

(v) This University feels that the suggestion to transfer men from Geological Survey for appointments in Universities for a certain number of years is not sound, and the analogy drawn from the I.M.S. does not apply as I.M.S. men are not seconded for limited periods (except in very exceptional cases), and are attached as Professors in their particular subjects to an institution although by virtue of promotion they may be transferred to another institution, and not from administrative post to a Professorial post and vice-versa. The University realises, however, that there might be rare cases of men having special aptitude for imparting instruction and guiding research and that special arrangements could be made in such cases to transfer for a period these men from the Geological Survey to a Professorial post in one of the Universities, just as it would be possible to transfer a man from a Professorial post to an administrative post in the Geological Survey in any case where he had given evidence of special ability in this line.

(vi) This University is in agreement with the policy of financial aid proposed.

Undergraduates are welcome to join the University on passing of an examination after a definite course of study, and it is not possible to arrange for a transfer in the middle of a course of study.

(vii) This University agrees with the proposal to acquire the needed scientific equipment etc., through the disposal Board.

this connection, I have also to inform you that the Local had called for proposals from the University to implement recommendations made by sub-committees of the Government. reconstruction with regard to recruitment of Graduates y and for Post-graduate work and research in the University has made the following proposals.

UNIVERSITY OF MADRAS.

NOTE ON THE GEOLOGICAL RESEARCH INSTITUTE TO BE INSTITUTED IN THE UNIVERSITY.

The Institute will take up not only fundamental research but also research which will have a direct bearing on the Mineral Industry of the Province. The laboratory should provide enough accommodation for the following:--

(1) Testing and analysis of minerals with special reference to those of industrial value, in the Province
(2) Mineral beneficiation - research leading to improve the grade of minerals.
(3) Mineral Utilisation - research leading to economic utilisation of minerals.

The testing and analysis should engage the attention of four permanent assistants, and should be carried on as a matter of routine. The staff must be Geology graduates with training in Chemistry.

Research on mineral beneficiation and utilisation may have to be taken up by at least six members with high qualifications in Geology and Chemistry and with a genuine flare for research. Of the six members, it would be desirable if there are two with qualifications in Mining and Metallurgy.

The six research assistants and the four analysists may have to work under the direction of one Professor assisted by a Reader. The staff should consist of the following:--

One Professor; One Reader; Six Research Assistants; Four Analysists; One Museum Assistant and Librarian (B.Sc. in Geology); Four Laboratory Assistants; One Section Cutter; Three Attenders; Three Peons, and Two Sweepers.

With the facilities outlined, it should be possible to undertake investigations in directions which will greatly serve the needs of the Province, e.g., the following types of work may be undertaken.

(i) The research Assistants may be deputed to survey iron deposits in Districts like Salem, and to map them and estimate the contents; the grades of ores could be analysed in the proposed laboratories and research could be undertaken to improve the grade.
(ii) The Magnesite deposits in the Presidency could be similarly surveyed and research directed towards the extraction of the metal.
(iii) Collection of radio-active minerals and their properties and the radium content in the rocks of the Province could be studied.
(iv) Collection of various kinds of sands in the Province could be made and their utilisation in construction, glass and abrasive industries could be undertaken.
(v) Even if actual field work is not undertaken under the auspices of the University for the investigations, the material collected by the departments of Industries, Public Works and Geological Surveys can afford enough material for research.

Details regarding the recurring and non-recurring expenditure are enclosed.

The proposed Institute is intended mainly to undertake research, which will be of importance in the mineral development of the Province, and not necessarily for training people for higher degrees.

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UNIVERSITY OF MADRAS

DEPARTMENT OF GEOLOGY.

I. NON-RECURRING CHARGES:

(a) Building:	A single storeyed building with a floor area of about 15,000 sq.ft. Probable cost calculated at Rs.13/- per s.ft. including electric and sanitary fittings, etc. (The Accommodation to consist of a Chemical laboratory, a balance room, one dressing room, furnace room, x-ray laboratory, a room for microscopical work, a dark room, a rock grinding room, stores, museum and Library)		Rs.1,95,000 or Rs.2,00,000
(b) Furniture			Rs. 25,000
(c) Equipment (initial)	2 Nos. Petrological microscope.	5,000	
	1 No. Chemical microscope	2,000	
	2 Nos. Ore microscope	3,500	
	2 Nos. Simple Polarising microscopes	2,000	
	Section grinding equipment	2,000	
	Chemical and Assay balances 3 Nos.	3,500	Rs. 30,000
	Chemicals	5,000	
	Platinum and nickel ware	5,000	
	Silica, glass, and Porcelain ware	2,500	
	X-ray equipment, electrometer Goniometer, ore crusher, electrical and muffle furnaces, concentration table, flourescent lamp, magnetic separators, elutriators, field equipment etc.		Rs. 40,000
(d) Library -	Initial expenditure		Rs. 10,000
(e) Museum Collections -	Initial expenditure		Rs. 20,000
	Total Non-recurring charges ...		Rs.3,25,000

NOTE: The above does not include provision for a small workshop and a gas plant, as such provision already existing in the other laboratories can be utilised.

II. RECURRING CHARGES:

		MINIMUM	MAXIMUM
(a) Staff:	One Professor - 750-50-1000	9,000	12,000
	One Reader - 400-25-600	4,800	7,200
	Six Research Assistants 150-10-250	18,000	30,000
	Four Analysts		
	One Museum Assistant and Librarian 50-125	600	1,500
	Four Laboratory Assistants 75-100	3,600	4,800
	One Section Cutter 40-2-60		
	Three Attenders 23-35		
	Three Peons 16-24	2,200	3,200
	Two Sweepers 12-15	(in round figures)	
		Rs. 38,200	Rs. 58,700

P.T.O

	MINIMUM	MAXIMUM
(b) Laboratory Equipment. (For first five years)	20,000	20,000
(c) Library (including Journals)	3,500	23,500
(d) Provident Fund	3,000	4,500
(e) Contingencies	2,000	2,000
Total recurring charges	68,700	83,700

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REPORT OF THE COMMITTEE REGARDING MEASURES FOR THE IMMEDIATE IMPROVEMENT AND EXPANSION OF FACILITIES FOR SCIENTIFIC AND TECHNICAL TRAINING IN UNIVERSITIES.

The information relevant to the three University Research Departments of Biochemistry, Botany and Zoology and the A.C.College of Technology is given in the accompanying statements. The information relating to each Department is given under two heads - A and B. Section A relates to measures for increasing the outturn of scientific personnel without new construction of buildings and which can be immediately put into effect; section B to more ambitious plans involving capital expenditure on additional buildings.

We would point out in this connection that an increase in the outturn of Scientific personnel can be secured in two ways: (i) by accelerating the course of training of post-graduates and research workers by increasing the efficiency ~~inux~~ of existing Laboratories, and (ii) by expansion of the existing institutions to accommodate more students and to compass additional lines of work. Of these measures we consider the first the more important and urgent for the following among other reasons. In the first place the results will be immediate as the inevitable delay entailed in the new construction of buildings etc. will be avoided. Secondly it would enhance not only the quantity but also the quality of the personnel produced, a consideration of the greatest importance for the progress of scientific development in this country. It is a well known fact that post-graduate training which normally takes about two years in Europe and America takes from four to five years in India. This is mainly the result of inadequate laboratory facilities including under this term staff, equipment and library service. If these defects are remedied and the period of training reduced to that usual in foreign countries the annual outturn of trained scientific workers could be more than doubled.

P.T.O

The University Research Departments have at present the following strengths: - Biochemistry 15, Botany, 12, and Zoology 12. The number of students leaving annually amounts from 3 - 4 for each department. With better facilities this number can be raised to 8 - 10 for each department by intensifying the courses and by taking in a few more students (without increasing the available accommodation). The Laboratories are fairly well equipped so that capital expenditure for additional equipment need not be large. But what is very urgently needed is a permanent staff of trained research workers, who will each possess special experience in one of the lines of work being pursued in the ~~Kitchen~~ Laboratory. With such a staff it will be possible to provide all the individual attention which each student in the laboratory needs, to arrange for teaching by lectures and seminars and to have diploma and degree courses by examinations on special branches. Help and guidance of the nature which such a nucleus of workers can give is normally available to every post-graduate student in foreign Universities; post-graduates in India are for many reasons in greater need of such individual help and instruction. Therefore the chief financial provision we have asked for is for the maintenance of an adequate staff. Some provision has also to be made for books and periodicals as the funds available at present for their purchase are not sufficient for obtaining all the literature. Given these facilities it will be possible for each of the Laboratories to produce annually 8 to 10 well trained men, who would be really useful for promoting the scientific and technical development of the country.

The financial requirements stated under section B are for a much greater increase in the outturn of the trained personnel involving considerable increase in the present strengths of the departments and the construction of additional buildings. Such expansion will also enable the introduction of new courses which the University Research Departments are in a specially advantageous position to undertake. Thus the Botany and Biochemistry departments could collaborate to give a good course in Fermentation Technology

since researches on microbiology are being carried out in the former department and on Industrial Fermentations and industrially important biological products in the latter. From the industrial point of view the genetic hybridisation of micro-organisms with special reference to their fermentative abilities needs investigation; this is a subject which has not received the attention it deserves; Further the three departments could colloborate in giving a full course in Marine Biology. A course in this subject embracing the study of phyto - and zoo-planktons, the chemistry of sea water, the migration of fauna and flora and methods of plankton and dredge collection will serve a useful purpose as there is no Institution in this country to undertake this work. The Botany department also proposes to run a diploma course in Horticulture, plans for which were drawn up and accepted by the University some time ago which have had to be kept in abeyance for lack of funds.

Finally we would stress the necessity for senior members of Scientific Research Institutions to have periodic opportunities to visit foreign Laboratories to acquaint themselves with the latest developments in knowledge and technique. In the present state of scientific development in India we feel that such contacts with foreign ~~pr~~ Institutions are an absolute necessity for progress and financial provision should be made to enable Universities to send their staff abroad for short periods.

Among other valuable assistance which the Central Government could give scientific institutions may be mentioned the removal of excise and customs duties on scientific equipment and the removal of all restrictions on the import of such articles.

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UNIVERSITY BIOCHEMISTRY DEPARTMENT.

SCHEME A.

Present strength of the Department 15: Annual out-turn 3 - 4

Proposed strength of the Department 20: Proposed out-turn 8-10

Grants Required:

12

Capital Expenditure.

1. Minor Improvements to Laboratory & Installations . . .		Rs.25,000
2. Urgently needed special equipment (Micro-polarimeter, Hydraulic press etc.)	...	30,000
3. Books & Periodicals (including back numbers)	. . .	5,000
	Total	Rs.60,000

Recurring Expenditure:	Grade	For first year Init. pay & allowance per month.	Total per year.
		Rs.	
I. Staff:			
1. One Senior lecturer in Biochemistry	200-20-400	300	
2. " " Animal Nutrition	200-20-400	300	
3. " " Physiological Chemistry	200-20-400	300	
4. " " Fermentation and Biological Products.	200-20-400	300	
5. " " Plant Biochemistry	200-20-400	300	
6. One Micro-analyst	150-15-300	150	
7. One Stenographer-clerk	100-10-200	100	
8. One Laboratory Mechanic	75-7½-150	100	
9. Five Attenders	50- 5- 75	250	
Total. . .		2100	
10. Dearness Allowances etc.		400	
Total (Per month)		2500	30,000
II. Apparatus & Chemicals			15,000
III. Books & Periodicals			1,500
Total recurring expenditure (annual)			Rs.46,500

SCHEME B.

To increase the strength to 40 and the annual out-turn of trained personnel to 15 - 20 and to introduce training courses in branches of applied biochemistry such as fermentation technology:

I. Capital Expenditure.

For expansion of the Laboratory (including buildings & Additional equipment)	200,000

II. Recurring expenditure.

1. Apparatus & Chemicals	30,000
2. For additional Laboratory staff (attenders, peons &c)	2,500

Total (for first year) Rs.232,000

SCHEME FOR EXPANSION OF THE BOTANY LABORATORY, MADRAS, SO AS TO UNDERTAKE TO TRAIN POST-GRADUATE RESEARCH PERSONNEL (ADDITONAL).

SCHEME A.

Present strength of the department 12: Annual out-turn 3.
Proposed strength of the department 16: Proposed out-turn 8

Capital Expenditure.

1. Special apparatus	Rs.20,000
2. Library (Books & Periodicals)	Rs. 5,000
Total.	Rs.25,000

Recurring expenditure.

Staff:

1. One Senior Lecturer in Mycology. Scale- 200-20-400 with a start of Rs.300	
2. " " " Plant Physiology " " "	Rs.300
3. " " " Plant & Soil Bacteriology (Chemistry)	Rs.300
4. One Senior Lecturer in Horticulture	Rs.300
5. One Stenographer Clerk, Scale 100-10-200	Rs.100
6. Four Laboratory attenders. Scale 50-5-75	Rs.200
7. Two gardeners Scale 30-4-60	Rs. 60
Total dearness allowance for the staff for one month at 17½% on an average	Rs.273
Recurring expenditure for the staff for one year	Rs.21,996.

General:

1. Apparatus and chemicals	Rs.5,000	
2. Contingent expenses	Rs.1,500	
3. Garden and field expenses	Rs.1,000	
4. T.A. for the staff	Rs.1,000	
5. Books and periodicals	Rs.1,000	
Total	Rs.9,500	Rs. 9,500
Total recurring expenditure for one year		Rs.31,496
Net sum required for Scheme A for first year		Rs.56,496
or say		Rs.57,000

SCHEME B.

To increase the strength to 40 (including diploma students) and the annual out-turn of trained personnel to about 28(including 8 research workers and about 20 diploma students) a year and introduce training courses in Horticulture, the following expansion will be necessary.

Capital expenditure.

One additional wing to the existing Botany Laboratory (ground floor and first floor)	Rs.1,25,000
Equipment for the above	Rs. 50,000
Special apparatus	Rs. 50,000
Four acre plot in the vicinity of Madras for developing Horticulture Station	Rs. 30,000
One insect proof glass-house for Virus Research	Rs. 25,000
Bulk grant for purchase of periodicals, back numbers and books for the library in the various branches of Botany	Rs. 10,000
Total	Rs.2,90,000

Scheme B (Continued):

Recurring expenditure.

Staff:

1. One Senior Lecturer in Mycology. Scale 200-~~8~~-400, with a start of		Rs.300
2. do do in Plant Physiology	do	Rs.300
3. do do in Plant & Soil (Bacteriology Chemistry)	do	Rs.300
4. do do in Horticulture	do	Rs.300
5. One Junior Lecturer in Horticulture Scale 150-10-200		Rs.150
6. One Stenographer clerk, scale 100-10-200		Rs.100
7. One clerk, Scale 50-5-125		Rs. 50
8. Four Laboratory attenders, Scale 50-5-75		Rs.200
9. Four skilled gardeners, Scale 30-4-50		Rs. ~~100~~ 120
Total dearness allowance for the staff for amonth at 17½%		Rs.318
Recurring expenditure for the staff for one month		Rs.2,138
Recurring expenditure for the staff for one year		Rs.25,662.

General.

Apparatus and chemicals	Rs. 5,000	
Contingent expenses	Rs. 2,500	
Garden and field expenses	Rs. 5,000	
T.A. for the staff	Rs.2,000	
Books and Periodicals	Rs. 2,500	
Total	Rs.17,000	Rs. 17,000
Total Recurring expenditure for one year		Rs.42,662
Net sum required to start Scheme B		Rs.3,32,662 or say Rs.3,33,000

DEPARTMENT OF ZOOLOGY

SCHEME A.

By intensifying the present system of training and improvement of the organisation, so that the period of training may be shortened.

Strength of the Department ... 12
Proposed strength 15

Annual out turn of trained personnels 3 to 4
Proposed out turn of trained personnels 6 to 8

		Total.
Recurrent:		
1. Staff: A. Four Senior Lecturers - 300-20-400		
as (a) Animal Ecologist	do	300
(b) Animla Physiologist	do	300
(c) Marine Biologist	do	300
(d) Embryologist	do	300
B. Laboratory technician and Photographer	100- 5- 150	100
C. Laboratory Assistant	75- 5- 100	75
D. Launch Driver	50 - 5- 75	50
E. Attenders (Two)	50- 5- 75	100
F. Boatmen (Two)	20- 2- 40	40
G.Stenographer	100-12-200	100
		1,665
Dearness Allowance @ 17½ %		291
Total		1,956
Total per annum		23,472
ii. Equipment: For apparatus and Contingencies per annum		7,500
iii. Library: For periodicals and books per annum		2,000
Total for recurrent expenditure		32,972
Non-recurrent.		
1. Arrangement for circulation of sea-water consisting of a covered overhead tank, ground level tank, handcart with a cask, ten aquaria with pipe-fittings aeration apparatus and electric pump.		30,000
ii. Motor boat as well as a tow-boat for collections (Minimum likely cost)		50,000
Total for non-recurrent expenditure		80,000

P.T.O. for Scheme B.

SCHEME B.

To increase the strength to 26 including the M.Sc.(By examination) annual out turn of trained personnels to 15.

For a course in Marine Biology for M.Sc.degree, grants needed in addition to those in Scheme A.

16

Recurrent.

i. Staff stipulated in Section A above may be enough with the addition of 2 attenders 50 x 12 x 2	1,410
ii. Equipment	5,000
iii. Library	3,000
Total for recurrent expenditure	9,410

Non-recurrent

1. Additional construction of another floor on the top of the present building, which will give three rooms more as research rooms, a lecture room and a laboratory	1,50,000
ii. Special equipment- microscopes, dredge, plankton and collecting apparatus etc.	40,000
Total non-recurrent expenditure	1,90,000

- - -

A.C.COLLEGE OF TECHNOLOGY.

1. An immediate grant of at least Rs.10 lakhs will help to carry through expeditiously the present programme of work on Buildings and their fittings. This will help the College forthwith to reach its objective of training twenty students in each course.

2. Three new courses can be definitely started in the near future, taking advantage of the part facilities already available in the College of Technology and in the College of Engineering. They are (1) Textile Chemistry (2) Rubber and Plastics (3) Metallurgy.

Each course will require the following grants.

(1) Capital.

(a) Buildings and Fittings	Rs.1,00,000	This is an estimate for the extensions to the Main Buildings that are being constructed.
(b) Capital Equipment in Instruments & Plants etc.	Rs.1,00,000	
(2) Recurring Expenses	Rs. 50,000	

This estimate for recurring expenses is based on the following:--

Recurring:

1 Professor	750-50-1000	Rs.1000
1 Reader	400 - 600	Rs. 600
1 Lecturer	300 - 400	Rs. 400
2 Demonstrators	150/-	Rs. 300
1 Steno-Clerk	100-10-200	Rs. 200
1 Mechanic	75- 5-100	Rs. 100
1 Asst.Mechanic	50- 5- 75	Rs. 75
2 Laboratory Attenders	50 -5- 75	Rs. 150
2 Peons	30 - 5-50	Rs. 100
		Rs.2925
Staff 2,925 x 12 (i.e.)		Rs.36,000
Chemicals & Contingencies		Rs.12,000
Books and Journals		Rs. 2,000
		Rs.50,000

- - -

F. 32 (a).

E D U C A T I O N Department

From (Name) SRI D.S.REDDI M.A.(OXON)

Designation DIRECTOR OF PUBLIC INSTRUCTION,

Station M A D R A S.

Received ..... Registered .....

To

The SECRETARY TO GOVERNMENT
Education & Public Health Department

M A D R A S.

40492 Enclosures: RC. No. 224-L4/48 dated 29th M a y 1948..

Sir,

SUB: SCIENTIFIC MAN-POWER COMMITTEE OF THE GOVERNMENT OF INDIA - INTERIM REPORT.

REF: Government Memorandum 10048-2/48-A Education dated 15th M a y 1948.

****

With reference to the Government Memorandum cited above, I have the honour to request you to ~~x~~ furnish me with a copy of the Interim Report of the Scientific Man-~~Poer~~ Power Committee for reference.

I have the honour to be,
Sir,
Your most obedient servant,

for Director of Public Instruction.

Ram.30/5/48.

31/5.

ASST. SECRETARY TO GOVERNMENT
1 - JUN 1948
EDUCATION AND PUBLIC HEALTH DEPT.

E.P.H.(A)

Memo.No. 10048.4/48 A Educn. Dated 3-6-48

Sub: Scientific Manpower committee - Interim report.

c.no.40492 from the D.P.I. No. 224-L4/48 d. 29.5.48.

The D.P.I. is informed that he may obtain a copy of the Interim report of the Scientific Manpower Committee referred to, either from the Govt. Book Sales Depot, Mount Road, Madras, or from the Govt. of India Press, New Delhi.

4/6

6/2-6-48

DSM 3/6/48

To The D.P.I.
Copy to C.E., P.W.D., Genl.
5/6-6-48

175/47—12-11-47—10,000.

ANDHRA UNIVERSITY

All official letters, packages etc, should be addressed to the Registrar by designation and not by name.

Waltair, 31st May, 1948

TELE { GRAMS: "UNIVERSITY", WALTAIR
PHONE: VIZAGAPATAM No. 8.

No. C5-4750-47

Encl.

From THE REGISTRAR, ANDHRA UNIVERSITY.

To The Secretary to the Govt. of Madras,
Education and Public Health Department,
Fort St.George, Madras.

ASST. SECRETARY TO GOVT. EDUCATION PUBLIC HEALTH 3 JUN 1948

Sir,

41164 Sub: Scientific Man Power Committee - Interim Report - views.

With reference to your letter No.10048-1/48-A Education dated 15th May, 1948, I have the honour to inform you that the matter will be considered by the Syndicate at its meeting to be held on 4-6-48 and its views will be communicated to you thereafter.

MSD

E.P.H.(A)
Maybe added to f.6.×
6/3-6-48

Incharge Registrar.

DSM 5/6/48

×Sent to Depts.

175/47—12-11-47—10,000.

ANDHRA UNIVERSITY

All official letters, packages etc, should be addressed to the Registrar by designation and not by name.

TELE { GRAMS: "UNIVERSITY", WALTAIR
PHONE: VIZAGAPATAM No. 8.

Waltair, 22nd June, 1948.

ASST. SECRETARY TO GOVERNMENT
26 JUN 1948
EDUCATION AND PUBLIC HEALTH DEPT.

No. C5--4750--47.

Encl. One.

From THE REGISTRAR, ANDHRA UNIVERSITY.

To The Secretary to the Govt. of India,
Ministry of Education,
New Delhi.

47214

Sir,

Sub:- Scientific Man Power Committee--Interim Report--Recommendations--Implementation of.

Ref:- Your letter No.F.21-64/47-B.III(P) d/5-2-48.

I am to forward herewith a Note containing the views of the University on the several recommendations made on the report of the Scientific Man Power Committee, and referred to in your letter quoted above.

Registrar.

nvr.

Copy to the Secretary to the Govt. of Madras, Education& Public Health Dept., Madras with reference to his letter No.10048-1/48-A dated 15-5-48.

NOTE containing the views of the University on the several recommendations made in the report of the Scientific Man Power Committee:-

Paragraph 4: As our Science Colleges are institutions providing instruction for Honours and M.Sc. students and for the conduct of research, our laboratories are fully utilised and so it is not possible to introduce double shift system.

Paragraphs 5,6, and 7 contain recommendations to Provincial and Central Governments and so no remarks are offered by the University.

Paragraph 15(1): Introduction of 12 months intensive training programme in cooperation with industry:-

(a) It is possible to undertake organisation of a 12 months training course for M.Scs. and graduates in Chemical Technology provided the University is given the grant recommended in that paragraph, namely Rs.50,000 recurring and Rs.3,00,000 non-recurring.

Note:- The Government of India have already been addressed for necessary grants. They have sanctioned for 1947-48 a sum of Rs.60,000 for buildings and Rs.10,000 for equipment as an advance grant towards the implementation of the development plan of the Technology Department (excluding its department of Chemistry).

(b) So far as Engineering courses are concerned, it is very doubtful if it will serve the purpose with which the proposal has been made. During the last war, this experiment was tried at the College of Engineering, Guindy, but had to be given up as it was thought that increasing the number of Colleges was a more feasible solution and will show good results. By the suggested method the output can be increased by about 25 per cent only; but in doing so, both the staff and students get over-worked and fatigued due to working for all the 12 months of the year without rest. The staff do not get any time for self-study, and valuation of the class work. For their Engineering training, students are required to go for Survey Camp once during each session, which is generally held in December or January, after they have had a general grounding in the Survey course and when they are in a position to take full advantage of the intensive Field work practice given to them. December and January, being the coolest months of the year, are most suitable for field work. By the arrangement proposed it will not always be possible to hold the Camp in winter months. For instance, if the session starts in September, the camp will have to be held in May or June, which are the most unsuitable months for Field work, where the students have to work in the sun from 6-00 A.M. to 12-00 noon every day of the Camp. Another drawback of the arrangement is that the College gets out of tune with the extra curricular and Inter-Collegiate activities of the University, as the College sessions will vary from year to year and will be different from those of the other Colleges. Therefore it is not desirable to apply this scheme to the Engineering Courses of study.

Paragraph 16(ii): Introduction of three year Degree course in Engineering:- The University is agreable to this proposal.

Paragraph 17(iii): Introduction of double-shift system: We are of opinion that this proposal will yeild maximum results as the output of each Institution can in this way be doubled. The main drawback, however, of these proposals are:

(a) Hostel accommodation for students
(b) The Residential accommodation for staff and
(c) The non-availability of staff.

In most institutions the question of accommodation both for students and staff is a great problem. And if there are reasonable chances of having double-shift system, the University will have no objecti...

Paragraph 18(iv): Teaching faculties of the Science Department of suitable Colleges be assist[ed] the education in basic sciences for Engineering students.

The University is in agreement with the above proposal. As soon as the Engineering College now at Cocanada, is shifted to its permanent headquarters, Waltair, this proposal can be implemented.

Paragraph 19(v): That Engineers in Government service should be encouraged to assist in t[he] instruction in Engineering College.

It would be possible to act up to this proposal if the Engineering College is situated in a big city like Madras where a large number of Engineers are available to assist; but in a place like Cocanada, it is impossible to get suitable Engineers to help in the instruction. Engineers usually have plenty of work of their own, and usually are not able to spare sufficient time to do this extra work and are frequently unable to fulfil their engagements as they have to be frequently taken away from headquarters on tour, and a good deal of time of the students is wasted. Sometimes on account of the exigencies of service they are suddenly transferred to other places and the course of instruction suffers. Probably the better course would be to get some Engineers from the Public Works Department temporarily, with the object of getting the benefit of the "latest ideas and knowledge and appreciation of the latest developments in the various Engineering activities." Even this procedure has been found unsatisfactory. In fact this procedure is being followed in respect of certain categories of staff in this institution. Most of our Assistant Instructors, for instance, and some of our Instructors too are deputed by the Public Works Department. The drawback of this arrangement is that these Public Works Department Engineers take about a year or two to prepare their Lectures and refresh their knowledge of the subject, for imparting it to students; and when they begin to be useful members of staff, it is time for them to be transferred back to the Department. It has, therefore, been a general policy to employ permanent staff for the Engineering Colleges with requisite practical experience.

Paragraph 20(vi): That the pay and prospects of a teacher should correspond to these that would be open to him had he joined the Technical Department under the Government.

The University agrees with the suggestion that suitable salaries should be given to teachers, but of the opinion that the salary of the teachers should be higher than would be open to them, if they join the Technical Department under Government, due to the fact that their cadre being smaller than that of the Engineers in the Department, there are fewer chances of promotion for them. It is necessary to plead that the salaries in Engineering Colleges should be actually higher than these in the Department. As it is, the salaries sanctioned for the Engineering College staff, are higher than those of the corresponding grades in the Public Works Department in the Madras Presidency. But even these scales are not sufficient and the pays should be increased still further in order to attract more persons to the teaching professions.

Paragraph 32: This is a recommendation to the Government [to] which no remarks are offered.

Paragraph 33: In this University there are no facilities [for] training in Leather Technology or leather Chemistry.

Paragraph 38: Education of Agricultural personnel:-

The position in this province (in Madras) is very satisfactory [as] regards the training of personnel for the Agricultural Department and the running of its various activities. The Agricultural Colleges at Coimbatore and Coimbatore affiliated to the Madras University, respectively [are]

The xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx estimated output of the graduates annually from both the colleges is 160. The output figures cited in the report at para 36 are for the pre-war period. A post-war development scheme of the Madras Government (No.14 and 14 a) provides for increased admissions to the two Agricultural Colleges leading to an increased output as mentioned above.

This year (1948) the Bapatla college has turned about 72 personnel in addition to a similar number at Coimbatore.

The difficulty appears to be not in a supply of trained personnel but a lack of vacancies to absorb the trained personnel. The Grow More Food Schemes which provided for additional staff have not begin to operate to enable the trained personnel to be absorbed as rapidly as they are becoming available.

Paragraph 38:- It is not clear from the remarks of the Committee why the Provinces should depend on the Central Agricultural Institute for training Gazetted staff. Ample opportunities are available at the Agricultural Research Institute at Coimbatore, and will shortly be available at the Bapatla Agricultural College, when it attains its full development into a Research Institute for the training of gazetted personnel for the Provincial Department of Agriculture. The M.Sc., course in Agriculture has been started at Bapatla from the Academic year 1948-49; and the men who will join the course will be available by 1950.

Paragraph 39: Dr.Mukerjee Report (pages 53-55).

The Agricultural College:- The following remarks are offered on Dr.Mukerjee's report:-

Standard of Teaching:- The remarks on the general standard of teaching being "of low quality" are rather sweeping. The xxxxxx xxxxxx present Principal, Agricultural College, Bapatla who has had some experience of Agricultural Colleges in Indian and foreign Universities, is of the view that generally speaking the standards of teaching in India Universities are satisfactory and nearly the same standards as what are found in the British Universities like Edinburgh or Aberdeen both of which Universities; we consider that Dr.Mukerjee's remarks do not apply to the Provincial Universities.

The standard of basic educational qualifications for admission to the B.Sc.(Ag.) degree course of the two Provincial colleges is quite satisfactory. We take in students who have passed Intermediate Arts, or Science examinations with a suitable combination of optional subjects and build up on that basic knowledge the superstructure of Agricultural science in all its aspects. We admit quite a number of graduates in Science also but it has been seen that graduates are not always the best students, as found by experience.

(b) Crop and Animal Husbandry:- are being given ample attention in the B.Sc., Agriculture course of the Andhra University. The subjects are being taught in the 2nd and 3rd year courses.

(c) Agricultural Economics & Agricultural Engineering:- The subjects form a part of the B.Sc. Ag. Degree course of this University.

(d) Advisory work:- The Advisory work of the Agricultural Department is carried out by the members of the Agricultural Department after they have gained some experience in the department. It is not a practical proposition to conduct courses of study in this aspect. An agricultural graduate can be expected to become competent to render advice on agricultural problems only after he has had some experience in actual field work in the department and the Agricultural college can train him in the Agricultural science but the expeirence in the field is always necessary to make him competent to take part in advisory work.

(e) Training of Kamdars or Fieldmen:- The Agricultural Department is conducting practical courses for the training of fieldmen

at Research Stations and Farms. This course is a fully practical one with an examination at the end of it. It is not necessary to make provision for such a course in Agricultural Colleges.

(f) Veterinary section:- There is a degree course in the Madras University but not in the Andhra University. It is desirable that this degree course is also instituted in the Agricultural College, Bapatla. There is no course on Dairy Science at both the Universities, at least a diploma course might be instituted.

Paragraph 53: We have been providing some of these courses as far as our funds permit. Of the courses which are recommended in this paragraph for development, we have provided an M.Sc. course in Foods and Drugs. With regard to Geo-Physics we have a scheme for the institution of branches in that subject and the scheme has been forwarded to both the Central and the Provincial Governments. We are making arrangements for opening a M.Sc. course in Geo-Physics from the beginning of the next academic year on the expectation that the Provincial Government would grant the necessary funds. Fermentation Chemistry is a subject which has not so far been included in any of the developmental schemes planned by this University.

Paragraph 55: This contains no specific recommendations to the Universities. It refers mostly to special institutions maintained by the Government and so no remarks are offered by the University.

-----oOo-----

NVR/-

Draft I

Letter No: 10048 A/48-5 Edn dt 26.7.48

To

The Regr, Annamalai University,
Annamalainagar

Sir,

Sub Scientific Man Power Committee of the G.O.I - Interim report.

Ref My Letter No: 10048 A/48-1 Edn dt 15.5.48

I am to request you to expedite your reply to my letter read above.

Yours faithfully

22.7.48 22/7/48 24/7/48

25

PTO

48

Memo No: 10048 A/48-6 Edn dt 26/7/48

Sub: Scientific Manpower Committee of the GOI - Interim report.

The DPI / C.E PWD(GI) is requested to expedite his reply to Govt. Memo No: 10048-2/48 A Edn dt 15-5-48 / 10048-3/48 A Edn dt 15-5-48 cited on the subject.

DPI 24/7/48

CS 22/7/48 / Dy 22/7/48

To
The DPI / CE (GI)
DPI/Dy 28/7

From
Dr. Rao Bahadur
A.R.Venkatachari, B.E., I.S.E.,
Chief Engineer, P. W. D.
GENERAL BRANCH,
Chepauk, Madras.

To
The Secretary to Government,
Education & Public Health Department

ASST. SECRETARY TO GOVERNMENT EDUCATION AND PUBLIC HEALTH DEPTT. 6-AUG 1948

Letter No.2215.PWW/48-1 Dated: 31-7-48.

Sir,

Sub: Scientific Man Power Committee of the Govt. of India - Interim Report -
Ref: Govt. Education and Public Health Memo No. 10048.A/48-6 dated 26-7-48.

58429

The Govt. of India Press, New Delhi, has been asked to supply a copy of the Report on the Scientific Man Power Committee and its supply is awaited. On receipt, the Government reference will be disposed of.

for CHIEF ENgineer, P.W.D.

TDC.3/8/48

C.E. P.W.D. (A) 3/4/48
The C.E. may be reminded on 21.9.48, if necessary.
6/8/48
31/8/48

50

ANNAMALAI UNIVERSITY

No. ~~4-5-~~ Rd

From G. 7

5th August, 1948.

THE REGISTRAR,
ANNAMALAI UNIVERSITY
ANNAMALAINGAR

To

The Secretary to Government,
Education and Public Health Department,
Fort St. George.

Sir,

58785

Ref: No.10048--1/48-A d.15-5-48.
Interim Report of Scientific Man-Power Committee.

The subjects referred to in the letter are under consideration of the Syndicate which is likely to meet during this month. I shall send you a reply immediately after the meeting of the Syndicate.

Yours faithfully,

K.V.

Ag. Registrar.

E.P.H. (1)
The Registrar's further Communication may be awaited.
26.8.48

31/8/48

52

ANNAMALAI UNIVERSITY

No.

From

THE REGISTRAR,
ANNAMALAI UNIVERSITY
ANNAMALAINGAR

To

E.P.H.(A)

53

Sec. D.P.I. will be reminded on 21.9.48.

18.8.48

ASST. SECRETARY TO GOVERNMENT
EDUCATION AND PUBLIC HEALTH DEPT.
12 AUG 1948

EDUCATION DEPARTMENT.

FROM
SRI D.S.REDDI, M.A.(Oxon),
DIRECTOR OF PUBLIC INSTRUCTION,
M A D R A S.

TO
THE SECRETARY TO GOVERNMENT,
Education & Public Health Department
M A D R A S.

RC. NO. 224-L4/48 dated 9--8--1948.

Sir,

SUB: SCIENTIFIC MAN POWER COMMITTEE OF THE GOVERMENT OF INDIA - INTERIM REPORT.
REF: Government Memo. No.10048- A/48-6 Edn.,dated 26-7-1948.

28

60136

The Superintendent, Government Press, Madras was requested to furnish me with a copy of the Interim Report but he has reported that copies of the Report have not yet been received by him from the Manager of Publications, New Delhi. I have, therefore, addressed the Manager of Publications, New Delhi directly to furnish me with a copy of the "Report". I will submit my ~~x~~ remarks with special reference to points raised in the Government Memorandum No.10048-2/48-A Education dated 15-4-48.

P 3-4 ants

Yours faithfully,

for Director of Public Instruction.

Ram.10/8/1948.

53 E.P.H (A)

Letter. No. 10048-8/48 A Edn dated 12-10-48.

To

The Regr., Annamalai Uty.,
Annamalainagar.

Sir,

Sub: Scientific Manpower Committee of the G.O.I. - Interim report.
Ref: Your No. G.7. d. 5-8-48.

I am to enquire when a reply may be expected to my letter No. 10048A/48-1 Edn. d. 15-5-48.

I am, Sir,
Your obedient servant,
for Secretary.

P.T.O.

56

E.P.H.(A)

Memo. No. 10048-9/48A Edn dated 12-10-48.

Sub: Scientific Manpower Committee of the G.O.I. - Interim report.

From the C.E., P.W.D. No. 2215 P.WW/48-1 d. 31-7-48.

From the D.P.I. No. 224-24/48 d. 7-8-48.

The D.P.I. / C.E., P.W.D. is requested to expedite his reply to Memo. No. 10048-2/48A Edn. d. 15-5-48 Memo. No. 10048-3/48A Edn. d. 15-5-48.

To the D.P.I. / C.E., P.W.D.

29 H.P. 500/30-7-'29.

Annamalai University, Annamalainagar.

No. 7733

Dated 20th Oct., 1948

Enclosures:

ASST. SECRETARY TO GOVERNMENT
21 OCT 1948
EDUCATION AND PUBLIC HEALTH DEPT.

From

THE VICE-CHANCELLOR,
ANNAMALAI UNIVERSITY, ANNAMALAINAGAR,
CHIDAMBARAM.

17479

To

The Secretary to Government,
Education and Public Health Department,
Government of Madras,
Fort St. George, MADRAS.

Sir,

Sub: Scientific Man Power Committee of the Government of India;

Ref: Your letter No.10048-1/48 A. Education dated 15th May 1948 and No.10048-1/48 A. Education, dated 12th October 1948.

--oo--

With regard to the proposals you have called for in respect of item No.10 of paragraph 15 (1) of the report, I am sending herewith the proposals therefor.

2. With a view to training the persons qualified for M.Sc., Degrees in Research relating to Chemical Engineering I should like to make the following proposals:--

The University will undertake Research training in as many of the following subjects as grants which the Government of India may be pleased to sanction would enable the University to provide for:--

(1) Chemical Engineering, (2) oils, fats and soaps and (3) plastics, paints and varnishes in the Department of Chemical Technology of the University.

3. The University will also make arrangements with appropriate factories for practical training for about six months for the candidates who undergo this course. Persons who have been qualified for B.Sc., (Hons.) Degree in Chemistry of this University or any other recognised University or the M.Sc. Degree of a recognised University will be eligible for selection to this course. The course will be one of intensive training for 12 months at the University.

4. The University can take ten students every year for this training.

5. Though the Department of Technology of the University has been fairly equipped, certain additions to equipment and buildings and semi-industrial scale plants such as the following are required for giving the necessary intensive and specialised training:--

1. Hydraulic press;
2. Expeller;

P.T.O.

58

3. Hydrogenating plant with an electrolytic hydrogen generator;
4. Stainless steel autoclave for fat splitting;
5. Glycerine recovery plant;
6. Washing and toilet soap making plant;

6. Thus for additional equipment and additional buildings a capital grant of at least one Lakh will be required.

7. About Rs.25,000/- would be required as salary of one Professor, one Reader and Lecturers. Towards cost of salary of Foremen and Mechanics, subscriptions to Journals, purchase of glass apparatus, chemicals and raw materials, contingencies and travelling allowances about Rs.16,000/- will be required. Towards scholarship to students Rs.9,000/- will be required.

8. The suggestions made by the Scientific Man Power Committee in para 15 (1) of their report can be given effect to the Department of Technology at the University from June 1949, if sanction to the scheme is accorded by January 1949. I request you kindly to move the Government of India to sanction the grants therefor.

Yours faithfully,

Acchettiar

VR.20/10.

29 H.P. 500/30-7-'29.

59

Annamalai University, Annamalainagar.

No. 1729 Dated 20th October, 1948.

Enclosures: 20.10.48

ASST. SECRETARY TO GOVERNMENT
21 OCT 1948
EDUCATION AND PUBLIC HEALTH DEPT.

From

THE VICE-CHANCELLOR,
ANNAMALAI UNIVERSITY, ANNAMALAINAGAR,
CHIDAMBARAM.

27480

To

The Secretary to the Government of Madras,
Education and Public Health Department,
Fort St. George,
M a d r a s.

Sir,

Sub: Report of the Scientific Man-Power Committee-Proposals furnished.

Ref: Your letters No.10048-1/48A, Education, dated 15-5-1948 and 12-10-1948.

With regard to remarks on the recommendations contained in paragraphs 6 and 53 of the Interim Report of the Scientific Man-Power Committee called for in the first paragraph of Government's letter d.15-5-1948, I write to say that I am in entire agreement with the view expressed by the Committee at page 24 of the Report in regard to the necessity for the Government of India to come to the aid of all Universities by giving them suitable financial assistance to expand their post-graduate departments so that the out-put of post-graduate Science students may be increased. I entirely agree with the recommendations of the Committee that for an immediate improvement in the out-turn of Scientific Man-Power, Universities should be helped to create or enlarge facilities for higher education, research and practical training. Towards this end, as is rightly remarked by the Committee, grants should be given for the creation of scholarships on a generous scale, purchase of equipment and enlarging post-graduate departments in the Universities.

2. I am happy to find that the Committee has recognised the Annamalai University as one of the six Universities which can be asked to start post-graduate Research Departments in certain

GOVT. SECRETARY TO GOVERNMENT
21 OCT 1948
EDUCATION AND PUBLIC HEALTH DEPTT.

important subjects (Vide page 27 (iii) "Scientific Research Training" paragraph (c)). I am happy also to find that the Committee has recommended a capital grant of Rs.5 lakhs and a recurring grant of Rs.1.05 lakhs towards teaching staff and contingencies, in addition to 4 scholarships each of the value of Rs.100/- p.m. with a view to expanding the post-graduate research work in our University. (Vide page 15 of the Report).

I find that the subjects of post-graduate research and advanced study contemplated by the Committee for this University are Physics, Chemistry, Botany and Zoology. (Vide page 42 of the Report). I give below the proposals of these Departments for the promotion of higher research and post-graduate education with research leading to Post-graduate Degrees in the University (as contemplated in paragraph 55 of the Report given at page 12).

1. PHYSICS.

Research in the Department of Physics can be conducted on one line or more of the following lines of research:-

a) Wireless,
b) X-Rays,
c) Magnetism,
d) Spectroscopy.

The number of students who can be admitted for M.Sc. in research every year will be 2, and the number of students that can be admitted for higher research will be 2.

For additional equipment such as X-Ray diffraction unit, Interferometer and accessories, and additional buildings, a capital grant of Rs.1,35,000/- is required.

For expenditure on Professorial and tutorial staff, Glass blower, Photographer and Contingenries, a sum of Rs.25,000/- as recurring grant is required.

2. CHEMISTRY.

In this Department, research on one line or more of the following will be undertaken:-

a) Bio-Chemistry,
b) Advanced Organic Chemistry,

c) Soil Chemistry.

The number of students that can be trained in this Department is about 4.

Expenditure on account of additional equipment like Refrigerator, Autoclaves, Muffle furnaces, Physico-Chemical Apparatus and additional buildings, will amount to nearly Rs.1,20,000/-. For this purpose sanction of a capital grant is necessary.

Towards salary of Professorial and other tutorial staff, glass blower, photographer etc. and towards cost of chemicals glassware, books and periodicals, a recurring grant of about Rs.30,000/- will be required.

3. BOTANY

The lines on which research can be conducted are:

a) Plant Physiology and Ecology,

b) Plant breeding and Cytogenetics.

The number of students that can be trained at a time will be 3.

Towards additional apparatus and additional equipment such as Research Microscopes, embedding bath, microtome, camera with microphotograph equipment, Hand Tractor, bullocks, furniture, field laboratory scientific instruments etc. and towards additional buildings, Rs.1,20,000/- as capital grant will be required.

For expenditure on staff, such as Professorships and other tutorial staff in Plant Physiology and Ecology and in Plant Genetics, and establishment, books and periodicals and contingencies such as chemicals, seeds, manure, muslin cloth for bagging etc., about Rs.25,000/- as recurring grant will be required.

4. ZOOLOGY.

The lines on which research and post-graduate training can be conducted in this Department are indicated below:-

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Comparative embryology and experimental embryology; Applied aspects of the subject will be undertaken for investitation whenever possible. Genetics of Development will also receive attention. In due course an Embryological Institute will be built up.

The number of students that can be trained in the Department is given below:-

i) For M.Sc. by research: 4 at a time;

ii) For higher research (Ph.D.or D.Sc.) 1 at a time;

iii) For M.Sc. by Examination. 3.

Towards additional equipment such as special research microscopes, refrigerator, glassware, animal cages, acquaria, photographic apparatus, and towards additional buildings, a sum of Rs. 1,25,000/- would be required as capital grant.

Towards salary of Research Professor and tutorial staff and establishment, chemicals and other materials, an annual recurring grant of about Rs.25,000/- will be required.

In order to avoid delay in the receipt of the information by the Ministry of Education, Government of India, I am sending a letter to the Secretary, Ministry of Education to the Government, embodying these proposals, a copy of which is enclosed. The University will be grateful if the Government be pleased to recommend to the Government of India early sanction to the University of the grants contemplated in the recommendations of the Scientific Man-Power Committee.

Yours faithfully,

Accheltar

20.10.48

K.V.20-10.

Education Department.

From

The Director of Public Instruction,
Madras

To

The Secretary to the Government of Madras,
Education and Public Health Department,
Fort St. George, Madras.

ASST. SECRETARY TO GOVERNMENT
23 OCT 1948
EDUCATION AND PUBLIC HEALTH DEPT.

R.C.No. 224-L4/48 dated 19th October, 1948.

SIR,

Scientific Man Power Committee of the Government of India - Interim Report.
Reference:-Government Memorandum No.10048-2/48-A Education dated 15.5.1948.

I have the honour to enclose herewith a copy of the remarks of the Principal, College of Engineering, Guindy, on the Interim Report of the Government of India. As regards para 3 of Government Memorandum cited above a supplemental report will be submitted to Government on receipt of relevant particulars from the Principal, College of Engineering, Guindy.

Yours faithfully,

For Director of Public Instruction.

ks.20.x.

R.C.No.1-107-B/48. College of Engineering, Guindy, Madras - 15 Dated 7th Septr.1948

To

The Director of Public Instruction,
M a d r a s.

Sir,

Subject:- Scientific Man Power Committee of the Government of India - Interim Report — Remarks submitted.

Reference:-Your Proc.R.C.224-L4/48 dated 9..8..1948.

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** ** **

As pointed out in page 2, para 9 of the Interim Report, the whole of the report is based on one fundamental fact, i.e. requirements of technical personnel needed by the country of the Provincial Governments for carrying out their plans of industrialisation or projects. Unless this figure can be more or less correctly obtained, any planning of technical education cannot be definitely evolved. The Committee therefore bases the requirements on the capital flotation allowed by the Government for the various industries since January 1946. As far as the Madras Province is concerned, it will be possible to give more authentic data by October 1948 when the Sub-Committee submits its report on the requirements of technical personnel to the Standing Advisory Board for Technical Education, Madras.

From figures already available with the Standing Advisory Board for Technical Education of the Government of Madras and also from the Interim Report, it is absolutely clear that the demand for technical personnel is far in excess of the number of technical personnel that are actually turned out by the various research institutions, engineering colleges, polytechnics and other industrial schools in the country. This may be taken as an established fact although the Committee states that the plans and policy of the Central and other Provincial Governments are not fully known. The Committee therefore recommends that in order to meet this anticipated demand of technical personnel, a short term and long-term policy of training technical personnel must be instituted in every Province without any delay, say, within the next six months.

Intensive training for M.Sc. & Graduates (Page 4, para 15).:-

One of the recommendations made for the short-term programme is the introduction of an intensive 12 months training in Coopperation with industry. An example of how M.Sc.'s and Graduates can be given special training is given in the report, and one of the institutions where such training can be given is the Engineering College Guindy, Madras for which a capital grant of Rs. 2 lakhs and a recurring grant of Rs. 0.75 lakhs is recommended. The Engineering College at Guindy and other Engineering Colleges sponsored by the Government of Madras cannot undertake any such training, as these Colleges are imparting basic engineering in Civil, Mechanical, Electrical, Telecommunication and Highway Engineering which requires a certain definite period, which is at present

4 years, to impart this knowledge.

Shortened course of 3 years (P.5 para 16).

The second recommendation is the introduction of a three-year degree course in Engineering. The question of reducing the 4 year degree course to a 3 year degree course is under the active consideration of the Government and already a move has been made in this direction, and a resolution is expected to be introduced in the Academic Council of the Madras University at its meeting to be held on September 10th to that effect. By the shortening of the course to 3 years, it is anticipated that the existing Engineering Colleges would be able to turn out 33-1/3% more Engineers annually than what they would be able to do now. A certain amount of adjustment and increase of staff would be necessary during the transitition period, as the 3 year course and the 4 year course would be running as parallel courses for sometime.

Double Shift System (P.5, Para 17): -

The third recommendation is the introduction of double shift system in Engineering Colleges. I have already put up this recommendation in my Special Note dated 14.6.1948 to the Director of Public Instruction,Madras, who has referred the matter to the University. I am informed by the Director in his Proceedings Roc. No.7359-K2/46 dated 4.8.1948 that the Syndicate is not in favour of the introduction of Shift System in the College. It is, however, urged that if Engineers and technical personnel are required in large numbers, the question of introducing double shift system may be reconsidered, as this is one of the easiest ways of increasing the output of Engineers, provided funds are available for the employment of separate staff for running the second shift. The grant recommended for the first recommendation may be usefully diverted to this recommendation in order to enable theshift system to be introduced at least at the beginning of the next year. Further commitments such as hostels, dining rooms and furniture would be required to run the double shift and if the idea is approved by the Government, details can be worked out in due course.

Other recommendations:-

With regard to the fourth recommendation(page 5, para 18), i.e. the use of Science Departments of University Colleges for the instruction of Engineering students in Science subjects, in my reply to the Director, Rc.No.33-SK/48 dated 25.7.1948 about opening B.Sc. courses in Engineering Colleges, I have pointed out to the Director that instead of opening Science departments in Engineering Colleges, it would be economical to the Government to make use of nearby Science Colleges for instruction in Science subjects to the Engineering students. The money thus saved can be utilised for Engineering laboratories whose equipment requires considerable outlay. As far as the employment of experts for teaching, this question has been considered by the Special Committee of the Standing Advisory Board and a definite recommendation has been made to the Government that Engineers in Government service should be encouraged, whenever found suitable to assist in the instruction of Engineering Colleges. This would not only relieve the strain on the college Professors, but will also raise up the tone of instruction to practical standards. In addition this procedure would relieve to a great extent the dearth of qualified and experienced Instructors to deliver lectures to the students.

Instructional Staff - Salaries (P.5 Para 20).

The salaries now paid to the Instructional staff of the lower categories is such that no suitable candidate applies for posts that are vacant. At the present time, in the Engineering Colleges, there are four categories of staff, Professor - Rs.600 - 900; Instructor - Rs. 260-700; Junior Instructor - Rs. 260-420; Assistant Instructors and Laboratory Assistants - Rs. 180 - 280. Great difficulty is experienced in getting the last category of staff and instruction,

discipline, control in a College is severely handicapped without having staff who can efficiently carry out their work. It is therefore suggested that the last category of staff be upgraded to the grade of Junior Instructor. This would ensure the right type of staff being attracted for the teaching posts attached to the Engineering Colleges. The number of posts in the category of Instructors should also be proportionately increased so that there are adequate opportunities for the Junior Instructors to be promoted as Instructors in course of time for approved and merited service. The extra expenditure incurred by the Government through the above changes would be more than compensated by the efficient Engineers that are turned out of these colleges.

LONG-TERM PROGRAMMES:

(Regional Committee - Improvement of existing Colleges, Page 6, paras 22 and 23.)

In the long-term programme, the establishment of Regional Committees of the All India Council of Technical Education is advocated. In the recommendation to the Government of Madras, the Special Committee appointed by the Standing Advisory Board for Technical Education has recommended the formation of a Board for Technical Education with a Director of Technical Training for co-ordinating and planning of technical education in this Province. On a regional basis, this Board, suitably expanded, may fulfil the same function as recommended in this report. The same Committee has submitted a series of recommendations to the Government for improvement and expansion of the existing Colleges of Engineering and Technology and Government decision in this matter may be awaited.

Expansion of Delhi Polytechnic etc.

The expansion of the Delhi Polytechnic, the early operation of the Power Engineering Department of the Indian Institute of Science, Bangalore, the expansion of the Indian School of Mines do not directly affect the technical education of this Province, except that candidates from this Province may be sent to these institutions for training in subjects which are not catered for in the Engineering and Technological institutions of this Province.

Higher Technical Institution:

One important recommendation is the establishment of Higher Technical Institutions (page 7, para 28) From the records available in this office, I find that it would be desirable if one of the Higher Technical Institutions is opened in this Presidency in order to give adequate facilities for turning out specialists and for post graduate study and research. The Government of Madras may consider the advisability of urging the Central Government to take up this matter as early as possible.

Equipment (P.7, Para 26).

As far as the question of equipping our institutions of Engineering and Technology, it is considered that the Engineering Colleges in this Presidency have been able to acquire more or less most of the basic equipment necessary. A large amount of machinery and eaulpment has been obtained from the Army Surplus Disposals. Considerable delay, however, has

been experienced in obtaining the indents placed with the India Stores Department, U.K. and U.S.A. for the last three years. If the Provincial Government can negotiate with the Central Government for giving such indents a first priority and giving relief from import duty by allowing rebates of such imports, Engineering institutions of this Presidency will not suffer for lack of equipment.

Training of 'C' Grade Technicians:-

The Committee in their report on page 3, para 7, have classified technical personnel under three categories, "A" - Experts; "B" - Technicians with superior qualifications, "C" Lower Grade technicians including Mechanics. It is presumed that the training of experts will be conducted by the Higher Technical Institutions and by the Engineering Colleges of this Presidency conducting post-graduate courses and other specialised courses. The training of "C" class personnel consisting of Supervisors, Foremen, Artisans etc., is a matter of great importance. For every "B" Class personnel, there ought to be atleast 3 to 4 of "C" class personnel. The training of Supervisors and Artisans in this Province is now under the Director of Industries. In order to get a co-ordinated plan of technical education in relation to the needs of the Province, the recommendation previously mentioned that all technical training should be under a Board of Technical Education with a Director of Technical Training is considered the right procedure to be adopted by the Madras Government. If this is implemented, the training of "C" class personnel will go simultaneously with the training of "A" and "B" class personnel.

Practical Training:-

The question of practical training for Engineers has been dealt with in page 9, para 34. Not only should the question of practical training for Engineers be considered, but also the question of practical training for all classes of personnel. The apprenticeship bill considered by the Standing Advisory Board for Technical Education covers all aspects of this training. It is, however, pointed out that in these days when technical personnel are in great demand, the question of employing the products turned out from Engineering Colleges, Polytechnics etc., immediately and training them subsequently in the works wouldbe a much better proposition than any form of apprenticeship training. The former will certainly develop in the trainee a better sense of responsibility, resourcefulness, sense of duty and knowledge of technical work rather than any type of apprenticeship training.

Scientific and Industrial Research:-

In Section II, page 11, the Committee deals with training of personnel for scientific and industrial research. Although it might be argued that this may be advantageously left to the Department of Industries, yet if the organisation and development of Technical Education in the Presidency as pointed out previously is to be delegated to a Board of Technical Education with a Director of Technical Training, some observation on the same is necessary here. The training for (a) Research workers of the highest order are to be drawn from University post-graduates, who have shown a definite disposition for research. The Committee deplores the unsatisfactory development of Universities and other institutions for research, but have, however, recommended that training may be carried on in ten such institutions, (page 13, paras 57 and 58), with subsidies of capital grant and recurring grants and scholarships. Madras University or any institutions in this Presidency are not included in this list. The training of (b) Technical workers who are responsible for the manning of Industries and who are to be selected from Graduates and Technical diploma holders and conditioning them for employment is to be conducted in Government Scientific Departments(Page 13, para 59) and Universities (Page 14,para 62). Special attention is invited to the remark in page 14 that the

Universities of Madras and Annamalai of this Province are not so well-suited as other Universities. However, a capital grant of Rs. 5/- lakhs for Madras, Rs. 5/- lakhs for Annamalai, and a recurring grant of Rs. 1.7 lakhs for Madras and Rs. 1.05 lakhs for Annamalai is recommended in page 15, para 62. As the exact details of this training and the institutions in which it is to be conducted are not available, the Universities might be asked to furnish the details which enabled the Committee to make this recommendation.

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Industrial Training:-

In Section III, page 16, para 64, the Committee deals with industrial training which includes advanced training and foremanship training in Industrial concerns. There are twenty-three types of industries mentioned in page 17, para 65. The majority of these important types of industries are functioning very successfully in this Province. If the recommendations of the Committee can be implemented, these industries will materially help in the training of the above two categories. In addition, this move would be in the right direction as this would improve the technique of production in the industries.

The Committee recommends that qualified candidates should be selected and assigned to the various factories and may be given stipends of Rs.100/- for the first category and Rs. 75/- for the second category. A block grant of Rs. 8.2 lakhs is recommended, but it is not known how much of this is the quota for Madras. The Board of Technical Education to be formed may take up this matter as early as possible.

Defence Services.

A section of the report has been devoted entirely for technical training for Defence Services. The Committee have no specific proposals to formulate as they are severely handicapped for want of sufficient data. However, if the Defence Services of the country have to be brought to the highest pitch of efficiency, it is necessary that there should be co-ordination between the training of Civil personnel and that of military personnel. Several branches of the Defence Services, such as the Army, Navy, Air Force etc. require technical personnel of the highest order of all categories. During the last war the Engineering College at Guindy was able to supply Commissioned Officers and other categories of technical personnel, to the various Arms of the Defence Services in a remarkable manner. Reports received from the Defence Services and the records available in this office show that the products of this college have acquitted themselves very creditably in the discharge of their duties. The Board of Technical Education may also take up this matter and see how far the training of technical personnel of the various categories can also include the training of personnel required for the Defence Services. The Madras Province would be expected to contribute its quota for the Defence Services and every technical institution should therefore be well-equipped and prepared for this purpose.

Housing and Accommodation:-

The Committee makes special mention of the housing accommodation that will be necessary for the additional men who are to undergo technical training, The hostel accommodation in technical institutions and other institutions which are expected to carry out the training will be a serious problem. At the

present moment, everry hostel is full to its maximum capacity and a lot of trainees are obliged to undergo their training as day-students. The Madras Government donot generally consider the putting up of new buildings or extensions to hostels. If the existing institutions are to undertake the training of increased number of technical personnel, the question of extra hostels, dining room and other allied amenities will have also to be considered.

The above remarks are submitted as far as the training of technical personnel is concerned and donot touch on the training of other personnel required for the country or for the Presidency.

In conclusion, I would like to bring to your kind notice that the resources of the Madras Presidency consisting of the Engineering Colleges under the Government, Research Departments under the Madras University, well-established Science Colleges under the Government and other private institutions, Polytechnics under the Industries Department, Government Industries and factories privately owned have not been given the importance that they deserve. The report hardly touches on how these institutions can be made to train the various categories of technical personnel that are required in large numbers. As for instance, the Presidency College, Madras has been conducting research work of a very high order under Dr. Dey. The institution is well-equipped and might be developed with suitable grants to train research personnel of the highest order.

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During the last war, full use of this college was taken advantage of for training at a time 250 Air Force personnel and 250 War Technician personnel. In addition, the various departments are well-equiped to give facilities for research and with suitable additional equipment and grants, research scholars can be trained in this institution. The other Engineering Colleges of the Presidency, as soon as they are fairly well established, can take up this type of training. The only difficulty that is experienced at the present time, is want of well-qualified and suitable instructional staff for the vacant posts. If these posts are filled up, Government may examine the question of running post-graduate courses and research courses first in the Engineering College at Guindy and later on in other Engineering Colleges under the Government. In the recommendation made by the Special Committee appointed by the Standing Advisory Board for Technical Education for shortening the course from 4 years to 3 years, definite recommendations have been made for opening post-graduate M.Sc. courses in the various colleges. This matter referred to in this paragraph may be comprehensively taken up by the Board of Technical Education and the Director of Technical Training previously referred to in my remarks.

(True copy).

P. M —

FOR DIRECTOR OF PUBLIC INSTRUCTION.

B/21/X.

Education Department.

From

The Director of Public Instruction,
Madras

To

The Secretary to the Government of Madras,
Education and Public Health Department,
Fort St. George, Madras.

R.C.No.224-L4/48 dated 2nd December, 1948.

SIR,

Scientific Man Power Committee--Interim Report.

In continuation of my letter to Government, R.C.224-L4/48 dated 19.10.1948 I have the honour to enclose herewith a copy of the further remarks of the Principal, College of Engineering, Guindy on the Interim Report of the Scientific Man Power Committee of the Government of India.

Yours faithfully,

Ksnhamurthi

For Director of Public Instruction.

ks.5-12.

9/7/48

ASST. SECRETARY TO GOVERNMENT
9-DEC 1948
EDUCATION AND PUBLIC HEALTH DEPT.
92090

R.C.No.1-107-B/48.

College of Engineering,
Guindy, Madras-15;
Dated 16th Novr. 1948.

To

The Director of Public Instruction,
Madras

Sir,

Sub:-Scientific Man Power Committee of the Government of India - Interim Report.

Ref:-Your Proc.R.C.No.224-L/4/48 dated 19th October, 1948.

In my letter R.C.No.1-107-B/48 dated 7th September 1948, I have given my remarks on the Interim Report of the Scientific Man Power Committee of the Government of India on all points relating to Technical Education, basic, post-graduate and other specialised forms of training. In the proceedings quoted above, attention is invited to para 3 of Government Memorandum No.10048-2/48-A Edn., dated 25-5-1948. Before giving my particular remarks on this paragraph, I would like to amplify my remarks on paras 1 and 2 of the same Government Memorandum.

In para (1) of the Government Memorandum attention is invited to para 6 of the Interim Report which recommends that the Central Government must come to the aid of Provincial Governments to give financial and other assistance to expand their post-graduate Departments. In my letter R.C.No.2-5 A/48 dated 21.7.1948, proposals have been submitted for expanding the strength of Materials Laboratory, to make it an Industrial Testing Centre at a cost of about Rs. 12 lakhs. In another letter R.C.No.2-5 A/48 dated 9.11.1948, further proposals have been submitted for making the Highway Engineering Department of this College an Industrial Testing Centre at a cost of about 5.6 lakhs. If these proposals are accepted, the Central Government is expected to finance these two schemes. If the two schemes mature, not only will these two Departments become Industrial Centres, but they will also become centres for specialised post-graduate training. In the scheme, provision has been made for 4 research scholarships in the Strength of Materials Laboratory and 3 research scholarships in the Highway Engineering Department.

Reference to para 17(iii) of the Interim Report of the Scientific Man Power Committee is about the double-shift system. In my special Note dated 14.6.1948 submitted to the Hon'ble Minister for Education at his request, a copy of which was sent to the Director, proposals were put up by me for running a double shift system in the Engineering College, to increase the number of Engineers turned out from this college. If this system is to be worked satisfactorily and successfully, the primary condition would be the availability of the requisite number of Professors, Instructors, Assistant Instructors and all other necessary technical personnel to give instruction to the two shifts independent of each other. Considerable difficulty is being experienced at the present moment to man the different Engineering Colleges in the Presidency with suitable teaching staff. The position may be eased to a large extent when the overseas scholars return from

their studies abroad. Even then, it must be understood that these overseas scholars are most of them students who have just completed their course in the College and gone abroad for further studies in Engineering. They cannot therefore be compared to Professors or Instructors with considerable years of teaching experience. It would therefore take a certain amount of time to find suitable members of staff of the category of Professors, Instructors etc. to man the two shifts if the two shifts are to be worked satisfactorily. The Director of Public Instruction in his Proc.Roc.No.7359-K2/46 dated 4.8.1948 has informed me that the Madras University is not prepared to accept the double shift system at the present moment.

In para 19(v) a recommendation has been made that Engineers in Government service should be encouraged where available to assist in the instruction for reasons urged in the report. The Special Committee appointed by the Standing Advisory Board for Technical Education has made the very same recommendation to the Board and a survey is being made of the departments to find out whether practising engineers are available for this purpose. It may, however, be borne in mind that unless there are practising engineers with a flair for teaching and who can devote sufficient time for the preparation of lectures to students of University standard, it would not be to the advantage of the institution to adopt this method. The needs of practising engineers for carrying out the work of a Department are not of that standard of engineering knowledge which is imparted to the students in a University College. Unless Engineers are working in a Designing Department or on new Projects, their work is more or less of a routine nature which can be carried out with a pedestrian type of Engineer. The students of this college must be imparted with engineering knowledge which must be on a par with engineering knowledge imparted to students of other Universities in India and Universities in other parts of the World. It is very doubtful whether practising engineers in the various branches are available for assisting in the instruction in this college in the various branches of engineering. As an example, it is pointed out that considerable difficulty is experienced in getting practising engineers to address the members of Mechanical Engineering and Electrical Engineering Associations of this College. When engineers are available for such lectures, the lectures are of too elementary a nature for students of this college. In the Civil Engineering Department, however, owing to the large P.W.D. and other allied Departments and on account of the special Projects that are being contemplated by them, it has been possible to obtain Lecturers who could give lectures of a suitable standard for students of this college. A survey of the various services in the Province, is however, being made to find out whether there are such Engineers who can be invited to assist in the instruction given in this College.

Sometime ago, a recommendation was made to the Government of Madras for appointing a Visiting Professor for the Telecommunication Laboratory on an adequate remuneration. The Government, however, was not prepared to give the remuneration recommended, with the result that the Engineer was not prepared to do the work under t ose conditions. The institution could not thereore get the services of this very suitable engineer and is still without a Professor for that Department. Unless the Government is prepared to give adequate remuneration, the right type of Engineers would not be attracted for this work.

In para (2) of the Government Memorandum, attention is invited to para 14 and 15(i) of the Interim Report. In para 14, six different recommendations have been made. Recommendation (3) is the introduction of the double-shft system about which remarks have already been given previously. Recommendation (2) is about the introduction of a three year Degree course in Engineering. The Standing Advisory Board of for Technical Education have taken up the matter and are vigirously pushing this up. A special committee appointed by this Board has examined

the feasibility of shortening the course from 4 years to 3 years. The findings of this Committee were sent to the University of Madras and a syllabus, revised regulations etc. were drawn up by a Special Committee appointed by the Board of Studies in Engineering, and it was introduced in the Academic Council meeting of the Madras University on 10th September 1948. The Principal, College of Engineering, Guindy, as member of the Academic Council brought this up as one of the items of the Agenda which was duly seconded and supported. The Academic Council, however, decided to postpone the consideration of the introduction of the 3-year course to the next meeting of the Academic Council to be held in February. This meant that the 3-year course could only come from the academic year 1949-50 if it is passed by the University of Madras. In this connection, it is submitted that any measures brought about for a change in the existing courses should be very carefully considered. The present 4-Year course has proved its worth and similar courses are in existence in India for more then 50% of the Engineering Colleges. A change of this nature should first be decided in an Inter-University Board meeting as it is desirable to have a uniform general policy on an All India basis and not as separate policy for the Government of Madras. In the course of the deliberations of this Special Committee of the Standing Advisory Board for Technical Education, it was pointed out by very important members of the Board that the practice followed in America was to reduce the 4 year course to 3 year course. A recent communication has been received from the American Embassy through the United States Information Service that far from reducing the course from 4 years to 3 years, it is the intention of first grade Universities in America to increase the duration of the courses from 4 years to 5 years and not to reduce it from 4 years to 3 years. A copy of the letter received from the United States Information Service is enclosed for your kind information.

Recommendation No.1 deals with the introduction of an intensive 12 months programme in co-operation with industries. This recommendation requires very careful consideration if it is to be implemented to obtain the maximum benefit.

Recommendation 4 is the use of Science Departments of University Colleges ~~as~~ for instruction of engineering students in science subjects. In my letter R.C.No.35/SK/48 dated 25th July 1948, I have urged that in the new Colleges of Engineering at Coimbatore, Anantapur and Vocanada, it would not be advisable to open a Science Department, but every advantage should be taken of the nearest Science College to afford facilities for the necessary practical classes for the students of the Engineering Colleges. The amount thus saved can be utilised for the engineering laboratories which require large sums of money for obtaining the necessary equipment.

Recommendation 5 is about the employment of experts to assist in teaching. This is one of the recommendations also made by the Special Committee of the Standing Advisory Board for Technical Education, and would come under the purview of the Government in due course.

Recommendation 6 is about the improvement

of salaries of teachers which is also another recommendation made by the same Committee and will also come before the Government in due course.

In para 15(1) of the Interim Report, a recommendation has been made that the Engineering College at Guindy should be given a capital grant of Rs.2/- lakhs and a recurring grant of Rs. 0.75 lakhs for the special purpose of training M.Sc. and Graduates to be trained for a further period of 12 months on Chemical Technology or other allied subjects. An example of how an ordinary M.Sc. can be given 6 months training in an Engineering College and further six months training in an Industry in Oils and Facts or Paints and Varnishes is given. In my remarks under intensive training for M.Sc.'s and Graduates, I have pointed out that as the Engineering College at Guindy is engaged in giving basic engineering training in Civil, Mechanical, Electrical, Telecommunication and Highway Engineering for 4 years, it would not be possible to undertake this additional training of M.Sc.'s and Graduates for a period of 12 months. It is further pointed out that no post-graduate training leading upto an examination is available now in the Engineering College for students who have completed the B.E. Degree Examination in the various basic engineering subjects mentioned above. However, facilities are available to a limited extent, for students who wish to put in a thesis for their M.Sc., Ph.D., or D.Sc., of the University of Madras under the supervision of any one of the Professors concerned. A large number of students have come out successful and have obtained their M.Sc. Degree. If, however, this grant can be diverted for giving post-graduate training in specialised engineering subjects, it would to a large extent, assist the Province in finding suitable men to man their specialised services. The Projects contemplated by the Government and the Development of indigenous industries require at the present moment specialised Engineers. The capital grant of Rs.2/- lakhs can be apportioned to the various Departments to increase their research facilities and the recurring grant of Rs.0.75 lakhs can be utilised for the employment of special Professors and Research Assistants and for the award of atleast 10 Research Scholarships to the value of Rs.100/- each. If the Provincial Government can negotiate with the Central Government for the diversion of this grant for the purpose mentioned above, it will be possible to use the grant in the following manner.

3 Professors @ Rs.1,000/- for 12 months ..	Rs.	36,000/-
3 Research Assistants @ Rs.500/- for 12 months		18,000/-
10 Research Scholarships @ Rs.100/- for 12 months		12,000/-
Other technical personnel. ..		9,000/-
Total ..	Rs.	75,000/-.

Capital Grant.

Civil Engineering:-

Reinforced concrete & Structural Engineering ..		50,000/-
Irrigation and Sanitary Engineering. ..		50,000
ELECTRICAL ENGINEERING AND TELECOMMUNICATION ENGINEERING		50,000
MECHANICAL ENGINEERING including PRODUCTION Engineering..		50,000
Total ..	Rs.	2,00,000/-

One of the strongest arguments put forward for the shortening

of the course from 4 years to 3 years, is the introduction of post-graduate course of one year leading to M.Sc. degree by examination. If this is introduced along with the 3-year course and if the Central Government are agreeable to divert the capital grant of Rs.2/- lakhs and the recurring grant of Rs. 0.75 lakhs for the purpose mentioned above, the conduct of postgraduate courses would be doubly assured.

The above is an alternative proposal for diverting the Rs. 2-75 lakhs recommended by the Scientific Man Power Committee. In my letter R.C.No.1-107-B/48 dated 7th September 1948, I have suggested the diversion of the grant forrunning a double shift system. As the University of Madras is not agreeable to the double shift system the above proposal would appear to be a good alternative and acceptable to the University.

In para 3 of the Government Memorandum quoted above, attention is invited to para 53 of the Interim Report of the Scientific Man Power Committee. It is particularly pointed out that existing engineering institutions offering Graduate and Post-Graduate training should expand their usefulness by taking up allied branches of engineering, for example engineering colleges which impart basic engineering in Mechanical and Electrical branches, can take also training in Communication Engineering, Chemical Engineering and other branches. This College imparts basic engineering training in Civil, Highways, Electrical, Telecommunication and Mechanical Engineering. As such, its usefulness has been extended to more or less to its full capacity. Recommendations have, however, been made from time to time that other branches of engineering should also be taken as soon as possible. For Example, the University of Madras have already drawn up syllabuses etc. for a course in Automotive Engineering and Aeronautical Engineering, but no College under the Madras Government has come forward to open these courses. The Special Committee appointed by the Standing Advisory Board for Technical Education has recommend- that other branches of Engineering such as Production Engineering, Power Plant Engineering, Mining and Metallurgy, Locomotive Engineering, Marine Engineering etc. should be taken as early as possible. These branches of engineering are only recommended as postgraduate and specialised types of training. The basic engineering is confined to Civil, Mechanical, Electrical and Tele-Communication. If the recommendation of this Special Committee is approved by the Government, it would be necessary for them to allot to individual colleges only one or two of these specialised types of training so that duplicate courses can be avoided resulting in minimum expenditure to Government and maximum utility to the Province, especially to the Engineering services.

One of the recommendations in para 3 of the Government Memorandum is that Engineering Colleges should take up training in Chemical Engineering. It is submitted that the University of Madras has organised in the A.C.College of Technology situated in the premises of the Guindy Engineering College, courses in Chemical Engineering, Textile Engineering and Technology and Leather Technology. The students of these branches depend for their engineering training on the equipment and facilities available in the Engineering College, Guindy. The Engineering College, Guindy has therefore already taken up this recommendation in as much as it is offering necessary facilities for three types of industrial engineering required for this Province. With the expansion of the A.C.College of Technology,

it is considered that it is not necessary for other Engineering Colleges in the Presidency to take up Chemical Engineering as one of the types of Industrial Engineering for their future expansion, when they are more suited to take up specialised forms of post-graduate training in the engineering field. Besides, the Andhra and the Annamalai Universities are also running a similar course in Chemical Engineering. Under the above circumstances, it is considered not necessary that other Engineering Colleges in the Presidency which come under the Director of Public Instruction and the Madras University should take up training in Chemical Engineering.

S. Paul,
16.11.48
Principal.

(True copy).

II.

Copy of letter 842.551,No.1518,dated 9th November 1948 from the Public Affairs Officer, United States Information Service,162, Mount Road, Madras-2 to Lt.Col.S.Paul,B.E.,Principal,Engineering College, GUINDY.

—

Sir,

Reference is made to previous correspondence which has developed as a result of your request for information on the length of courses in engineering in American Colleges and Universities. In addition to the information sent to you on August 11, another communication has just been received from the Department of State at Washington as a result of first forwarding the enquiry there. The Department of State had received a letter from C.E.Macquigg, formerly President of the Society and now Dean, College of Engineering, The Ohio State University, Columbus, Ohio States:

"I believe you will find that most of the reputable engineering colleges of the United States require atleast four years curricula and some like us, have gone to five years (Minnesota, Cornell and others).

"It may be that those who wish to shorten the course to three years are misteking the objective of a College of Engineering with that of a Technical Institute.

"We added a fifth year to our requirements for the undergraduate degrees because of our belief that the inclusion of studies in the 'humanistic' stem(non-vocational) were highly desirable to broaden the mental horizon of our graduates. I may add that this has been approved by the majority of our alumni and largely by representatives of industry."

The Secretary of the American Society of Engineers, Mr. A.B. Bronwell of Northwestern University, Evanston, Illinois,in his letter to the Department states:

"I do not know of any recognised engineering college in this country which offers a B.S. degree in engineering at the end of three years. Certainly there are none which have been accredited by the Engineers' Council for Professional Development, the official accrediting agency of the engineering profession. The duration of the undergraduate engineering program has been determined largely by the minimum qualifications which engineering educators feel and the graduate should have to embark upon a career of engineering practice. Several of the leading engineering colleges in this country have extended their undergraduate program to five years--Ohio State University, University of Minnesota, Cornell University and others. There is a serious concern among

other leading educators as to whether or not the five year program will eventually be adopted by most if not all of the engineering colleges throughout the country.

"There has been a tremendous growth in basic engineering knowledge which has compelled engineering colleges to expand their curricula in order to keep abreast of the times. Also most engineering colleges feel that their treatment of subjects in the social science and humanistic field has been seriously slighted in the past and needs strengthening. These factors point toward an extension of the undergraduate curriculum rather than a contraction.

"In order to supply the technical manpower needed for the lower grades of technical labor, it has been recommended by the A.S.E.E. that technical institute be formed offering a two or three year terminal program. A number of such institutions have been set up in the United States. These does not offer B.S. degrees. Some of them have been accredited by the Engineers' Council for Professional Development".

(True copy).

For Director of Public Instruction.

ks.5.12.

E.P.H.(A)

Memo. No. 10048-11/48AEdn dated 26-2-49.

Sub: Scientific Manpower Committee of the Govt. of India
Interim report.

Ref: From the C.E., P.W.D., No. 2215 S.P.WW/481 dated 31-7-48.
Memo. No. 10048-9/48AEdn. d. 12-10-48.

The C.E., P.W.D. is requested to expedite his reply to Memo. No. 10048-3/48AEdn. d. 15.5.48.

24.2.49

26/2/49

E.P.H.-(A)

Memo. No. 10048-12/48A Edn. dated 4-5-49.

Sub: Scientific Manpower committee — Interim report.

From the C.E., P.W.D., Genl. No. 7662-Ad1/48 dated 21-3-49.

The C.E., P.W.D., Genl. is requested to expedite his reply to Memo. No. 10048-3/48 A Edn. d. 15.5.48.

To The C.E., P.W.D., Genl.

3.5.49

4/5/49

URGENT. PUBLIC WORKS DEPARTMENT

From

Sri A.R.Venkatachari, B.E.,M.I.E.(Ind.).,
M.Am.Soc.C.E., I.S.E.,
Chief Engineer, P.W.D.(General)
Chepauk, Madras.

To

The Secretary to Government,
Education & Public Health Department.

Letter No. 3530 AdI/48-16 dated 16th May 1949.

Sir,

Sub: Scientific Manpower Committee - Interim report -

Ref: Government Memo.No.4048-12/48-A. Edn. d/4-5-49.

A reply on the above subject will be sent at an early date.

S.S.16/5.

for Chief Engineer, P.W.D.
(General).

16.5.49

19.5.49

PUBLIC WORKS DEPARTMENT.

From
Sri A.R. Venkatachari, B.E.,
(Ind)., M.Am.Soc.C.E., I.S.E.,
Chief Engineer, P.W.D., (General),
MADRAS.

To
The Secretary to Government,
Public Works Department,
Fort St. George,
MADRAS.

Letter No. 7062 Ad.I/48-6, dated the 24th May 1949.

Sub: Scientific Man Power Committee of Government of India
Interim Report.
Ref: Government Memorandum No. Nil, dated 15-5-1949.

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In paragraph 19(v) of the Interim Report of the Scientific Man Power Committee it has been suggested that the Engineers' in Government service should be encouraged to assist in the Instruction in Engineering Colleges. This suggestion evidently refers to giving of part time assistance by Government Engineers with a view to improve the efficiency of technical Education imparted to the students by helping them to get a thorough grasp of the fundamentals of the subjects with special reference to their practical application. This idea was already accepted by Government in G.O. No. 1931, Education, dated 8-10-1946.

2. The Principal, College of Engineering, Guindy, who was consulted in the matter has also stated that the College does require visiting lecturers for the various branches provided that suitable men are available to give lectures on specialised subjects - vide copy of his letter enclosed.

3. It will be possible for this Department, to spare three lecturers for part time service to the College for giving lectures on the Civil Engineering and Mechanical Engineering subjects. In regard to the Electrical Engineering, Highways, Communication, Engineering subjects, the Chief Engineer (Electrical) and the Chief Engineer (Highways) may have to be consulted. It is mentioned in this connection that each officer selected can deliver only one lecture a week which is the maximum. The remuneration to be paid to the Officer may be fixed at Rs.40/- per lecture of one hour's duration.

The names of the Officers to be selected for the purpose will be decided after the proposal receives the sanction of Government.

I am sending a copy of this letter to the Principal, College of Engineering, Guindy also for necessary action.

for CHIEF ENGINEER, P.W.D. (GENERAL).

Encl: 1 Copy of letter
from the Principal.

vd 24.5.

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Copy of letter Rc.1.-107 B/48- Dated the 12th January 1949,
From the Principal, College of Engineering, Guindy, Madras-15,
To The Chief Engineer, P.W.D., (General), Chepauk, Madras.
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Sub: Scientific Man Power Committee of Government of India -
Interim Report - Para 19(v) - P.W.D. Engineers to
assist in instruction to Colleges.
Ref: Your letter No.7062 Ad.I/48-1, dated 27th November 1948.
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With reference to your above letter, I may state that the Interim Report of the Scientific Man Power Committee of the Government of India was referred to me by the Director of Public Instruction for my remarks and I have sent my detailed remarks on the various recommendations contained therein. I have also given my remarks on para 19(v) of the Report, about which a reference has been made in your above letter. I am enclosing herewith an extract of my remarks on the same that I have sent to the Director of Public Instruction for your reference.

The College does require visiting Lecturers for the various branches, provided suitable personnel are available to give lectures on specialised subjects. I am of opinion that two lectures a month are not adequate. There must be 2 lectures a week, or at lease one lecture a week. Three such Lecturers would be required for the Civil Branch, one Lecturer each for the Mechanical, Electrical, Telecommunication and Highway branches. If Officers are available in the department, the same may please be communicated to me so that I may obtain the necessary sanction and implement this proposal from the next academical year.

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Extract from the letter Rc.No.1-107-B/48, dated 16th November 1948 from the Principal, College of Engineering, Guindy to the Director of Public Instruction, Madras, regarding the Iterim Report of the Scientific Man Power Committee.

-o-

In para 19(v) a recommendation has been made that Engineers in Government service should be encouraged where available to assist in the instruction for reasons urged in the report. The Special Committee appointed by the Standing Advisory Board for Technical Education has made the very same recommendation to the Board and a survey is being made of the departments to find out whether practising engineers are available for this purpose. It may, however, be borne in mind that unless there are practising engineers with a flair for teaching and who can devote sufficient time for the preparation of lectures to students of University standard, it would not be to the advantage of the institution to adopt this method. The needs of practising engineers for carrying out the work of a Department are not of that standard of engineering knowledge which is imparted to the students in a University College. Unless Engineers are in a Designing Department or on new Projects, their work is more or less of a routine nature which can be carried out with a pedestrian type of Engineer. The studnets of this College maust be imparted with engineering knowledge which must be on a par with engineering knowledge imparted to students of other Universities in India and Universities in other parts of the World. It is very doubtful whether practising engineers in the various branches are available for assisting in the instruction in this College in the various branches of engineering. As an example, it is pointed out that considerable difficulty is experienced in getting practising engineers to address the members of Mechanical Engineering and Electrical Engineering Associations of this College. When engineers are available for such lectures, the lectures are too elementary nature for students of this college. In the Civil Engineering Department, ho ever, owing to the large P.W.D. and other allied Departments and on account of the special Projects that are being contemplated by them, it has been possible to obtain Lecturers who could give lectures of a suitable standard for students

P.T.O....

students of this College. A survey of the various services in the Province, is however, being made to find out whether there are such Engineers who can be invited to assist in the instruction given in this College.

C.F. 304.

OFFICE OF THE

Date 7.6 194 9. Hours Minutes

TELEPHONIC MESSAGE.

From	To
Sr Supdt C.E's office P.W.D	The Supdt L Section P.W.D

Sub:- Setting the man power Committee - interim report.

Ref:- your T.M. No. 2885/49 dated 1.6.49.

Your requisition is Correct. Kindly arrange to transfer the C.E's Letter No. 7062 AD/48-6 dated 24.5.49 to the E & P.H. Deptt.

[Please write on both sides.

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students of this College. A survey of the various services in the Province, is however, being made to find out whether there are such Engineers who can be invited to assist in the instruction given in this College.

Sometime ago, a recommendation was made to the Government of Madras for appointing a Visiting Professor for the Telecommunication Laboratory on an adequate remuneration. The Government, however, was not prepared to give the remuneration recommended, with the result that the Engineer was not prepared to do the work under those conditions. The institution could not therefore get the services of this very suitable engineer and is still without a Professor for that Department. Unless the Government is prepared to give adequate remuneration, the right type of Engineers would not be attracted for this work.

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/TRUE COPY/

B. S. Narayanan 25/5/49
SENIOR SUPERINTENDENT.

vd 24.5.

V.V.

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P.W.CL
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T. M. No. 28551/49-1 d/ 1.6.49

From The Suptt, P.W.(L)
To The Suptt, Estt. Section, office of the C.E., P.W.D., (General)

Sub: Scientific Man Power Committee of Govt. of India - Interim report.

Ref: From the C.E., P.W.D. (Gl.) No. 7062 Ad.1/48-6 d/24.5.49.

It is presumed that the letter cited above is the reply to a reference issued in the E & P.H. Dept. Please confirm.

E&PH consulted (Mr. ... (Current duties not ... T.M. ...

1/6/49.

Yes
1/6

Edn. & P.H.Department (A).

From the Govt. of India, Ministry of Education, No. F.21-64/47 -E.III(P) dated 5-2-1948.

Sub:- Technical Education - Scientific Man-power Committee appointed by the Govt. of India - Recommendations re: change of curricula in Universities and development of existing facilities for scientific and technical study.

Please see the Govt. of India's letter at page 1 c.f. This Deptt. is concerned with paras 4, 5, 6, 14 to 20, 32, 53 and 55 and the paras under 'Universities' on pages 1-2, 4-5, 8, 12, and 55 of the Report. These are examined in the Sectional Notes below. After orders are passed in the Sectional Notes, necessary drafts will be submitted.

2. Development Department is concerned with paras 7 and 8 on page 2 of the Report, paras 32, 33, 35 to 39 on pages 8-9 of the Report and the paras under "The Agricultural Colleges" on pages 52 to 55 of the Report. The file may be sent to them for taking necessary extracts for separate action by them. They will have to see re: para 2 on page 8 of the Sectional Notes and para 2 on page 23 of the Sectional Notes. P.W.D. will have to see re: para 3 on page 23 of the Sectional Notes.

[Issued as Letter No. 10048-1/48A Edn. dated 15-5-48 and Memo. No. 10048-2/48A Edn. dated 15-5-48]

A draft letter and two draft memos with reference to the orders on pages 5, 8, 11, 15 and 21 of the sectional notes are submd. After sectional notes are submd. After issue the file may be sent to Dev and P.W.D. as marked.

E.P.H.u.o.10048-3/48A dated 21.5.48

T.O.

Dev Deptt

2 To A.S. 'M' on plante

Pl. see the note of E&P.H. Deptt at p1 ante.
~~A.S.~~, D II, J, ~~A.H.~~ D I Sections of this Deptt are concerned with certain recommendations of the Scientific Man Power Committees. Necessary abstracts have been taken & placed below. Copies of this note together with relevant extracts of the Report of the Scientific Man power committee may be given to concerned sections of this Deptt for necessary action. Sections will kindly note their remarks on the sectional notes with which they are concerned. With these remarks this may be passed on to P.W Deptt.

Action as suggested in p20 ante
Sectional notes to be taken in Dev.

CPG
7.6.48

To II / PWD

Pages 35-39 on pp9-10 & pp52-55 of the Report re: Agriculture Edn.:— Extracts of these paragraphs with a copy of GI of India letter in plcf should be taken by A IV Section and referred to the DA for remarks & proposals, as desired in India Govt. letter. Dr Mukherjees note on the subject at pp52-55 is interesting. E&PH should see after DA's remarks are received as the cooperation of the Universities will also be reqd.

In Feb 48 the DA wanted a copy of the Interim Report but he was told that no copy was ready from the GI. E&PH may kindly obtain & furnish DA & this Deptt a copy each.

18 Feb 48 ASI

DI/48-1
22.6.48

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3 PWD(2)

To PH.

Please see note of Edn & P.H. at 'R' on p1 ante. So far as this deptt is concerned there is only one Research institution i.e Imigin Research Dr Poondi. Extracts of Sectional notes on p 23 ante the main note on p1 ante may be taken for separate action in this deptt (The C.H.(I) may be consulted in the matter).

With these remarks the file may be returned to E&PH.

28.6 E.P. (H.(A)

(Extracts taken) PWD 35914/pt1 29 Jun 48

The note from p2 ante may be read. With ref. to A on p2 ante it may be noted that Copies of the Interim Report are either available in the Govt Book Sales Depot, Mount Rd. Madras or in the Govt. of India Press, New Delhi. Dev. may get Copies of the Report from either one of these Book stalls and supply a copy to the Director of Agriculture also.

The replies of the Universities of Madras & Andhra & their enclosures to the letter on p 3 cf will be found on pp 5-31 and 37-45 cf. The ~~Ref~~ replies from the Annamalai University the DPI and the C.E, PWD (Cl) are awaited. They may be requested to expedite their reply. The proposals may be examined further on receipt of these replies also.

A draft letter and a draft Memo are submitted for approval. After issue, the file may be sent to Dev with ref to para 1 above.

24/7/48 (Illegible) 83690

It is presumed Dev have taken extracts of the sectional notes also for further action.

x Signed 10-7-48 A(Edn)

22/7/48

Development.

To A.S.

(E & P.H. dept. note at p. 3 above).

The file has been sent to this deptt. with reference to para 1 of E & P.H. note at p. 3 above. A draft memo to the D.A. and a draft T.M. to the S.G.P. are submitted for approval. After issue, the case may be returned to E & P.H. dept.

17/8/48.

17/8/48

Issued

SDH(gi)

× Issued as Memo. No. 83690-AII/48-1 dated 30-8-48 and T.M. dated 30-8-48 and retained in Develpt.

E.P.H.-(A)

The replies of the D.P.I., ~~the~~ C.E., & the Annamalai Univ. are awaited. They may be reminded on 15.10.48, if necessary.

11-9-48

18/9/48

14/9/48

Dev-n-o. 83690 AII/48-2

4-9-48

P.W.D.

Interim report taken

16.9.48

Abstract

Technical edn - Scientific Man power Committee's recommendations - changes in the procedure of interviews - Papers recorded.

In Feb. 1948 the Govt of India forwarded to this Govt a copy of the Interim report of the Scientific Man Power Committee and requested that this Govt might consider the recommendations in the report and take steps to implement such of the recommendations as may be acceptable to them and furnish Govt of India with copies of the schemes which they might propose to initiate for the purpose. It is not known whether the Committee submitted any final report. Nothing further has been heard from the Govt of India

The recommendations of the Committee with which this Govt were concerned were examined in sectional notes in consultation with depts. concerned. Then it was thought necessary to consult the three Universities, the D.P.I (G.E.(Poly)) and the Director of Industries and Commerce. The Universities and the D.P.I (G.E.) have sent their replies. The Universities were mainly concerned with the promotion of advanced research and for this they wanted additional grants from the Govt of India. They have sent copies of their letters direct to the Govt of India and the Govt of India would have considered the requests for grants. So no action is necessary on the part of this Govt. at this distance of time

About the other main recommendations viz adoption of the shift system, creation of more technical schools, reduction of the period of course in the Engg. Colleges no further action is necessary in this file. It has been decided in consultation with the Universities & P.W.D. (separately) that the adoption of the shift system is impossible. The question of reducing the course in Engg colleges is separately under consideration. More and more schools with diploma courses corresponding to technical schools are being opened every year.

In these circumstances no further action is necessary in this file. The papers may be recorded for future reference.

Govt. of Madras Edn. (B) 2.11.48 Deputy Sec.

G.O. No. 2732 Edn.

2/8/50

2/8/50

G.O. 704 Edn 3-3-50

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Recommendations of the Scientific Man-Power Committee in its Interim Report.

4. DOUBLE SHIFT:

We have considered in this connection, as an interim measure, the possibility of running double shifts in Colleges. While the double shift system would certainly help us to tide over the present difficulty of providing additional teaching accommodation and perhaps additional equipment we cannot whole-heartedly support its adoption. We are given to understand that during the war the double shift system was given a trial in some places but was not altogether a success. Teaching should have sufficient leisure not only to prepare lectures, correct home work and laboratory record books etc., but also to keep themselves up-to-date by reading current literature and latest text books. Although educationally unsound, we, in view of the present emergency, recommend, only as an interim measure, the introduction of double shifts in such institutions where there is a certain amount of spare equipment provided a completely new set of staff is engaged for lecture and laboratory work in the second shift. The Government should, whenever the introduction of the double shift system is considered feasible, come to the aid of the institutions if necessary by:

A

(a) bearing a share of the expenses on staff salaries and contingencies and

(b) assisting the institutions in the procurement of equipment and building materials.

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Education and P.H.Dept(A)

X C.No. 31200/46

The introduction of double shift system in colleges is already under consideration in a separate file× and the Director's proposals are awaited. An extract of the above recommendation may be taken and placed in the file for communication to the D.P.I. and for his further remarks. After a decision is taken in the file, the Govt. of India may perhaps be addressed for grants as suggested at 'A' above. For orders.

extracts taken and added to file. 8/12/48.

J.W.A.

8/12/48

17/12/48

The universities and the D.P.I. were against the proposal to introduce shift systems in colleges and it was decided that the proposal need not be pursued - please see fo No. 27/32 Edn dt 2.11.48.

(B)

8/2/50.

P.T.O.

Recommendation of the Scientific Man-Power Committee in its Interim Report

5. TECHNICAL HIGH SCHOOLS:

We note with regret that not much progress has been made in the establishment of Technical High Schools. We strongly urge the Provincial Governments, etc., to convert without delay some of their existing Ordinary High Schools to Technical High Schools and to simultaneously proceed with the early establishment of new Technical High Schools. We attach considerable importance to the establishment of a large number of institutions of this type. For, the products of these institutions are likely to be better fitted to take to scientific and technical occupations. As the establishment of such schools will reduce the total schooling period as preparation for professional courses by one year, it will also lead to an increase in the available material for admission to the professional and scientific institutions.

Education and P.H.(B.1.)

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It is proposed to introduce as an experimental measure bifurcated courses in 50 selected secondary schools under all types of managements. The question of opening separate Technical High schools under the control of the Education Department may be considered after experience is gained of the working of the bifurcated scheme of studies in secondary schools.

PTO

Recommendation of the Scientific Man-Power Committee in its Interim Report.

6. HIGHER SCIENTIFIC EDUCATION:

While we are pleased to note that the Central Universities, viz. Aligarh, Benares and Delhi, are being developed to provide wider facilities for higher scientific education, we feel at the same time that there is need for developing also the scientific departments of other universities, especially their post-graduate departments, so that an adequate number of scientific personnel with Honours and M.Sc. qualifications may be forthcoming for teaching posts, for service as specialists, for research and training in the National Laboratories and in industry; for example, each of the proposed Higher Technical Institutions is likely to require over 600 teachers and the National Laboratories would require more than 600 men with specialised qualifications. There is also the need for a large number of scientists to provide the expanded facilities for education in universities and other institutions. We therefore recommend that the Central Government should come to the aid of all universities by giving them suitable financial and other assistance to expand their post-graduate departments.

Education and P.H.(G.3.)

The remarks of the three Universities and the D.P.I may be obtained in the first instance.

S.Q.

PTO.

14 Short-term programme- Under the short-term programme, we recommend the adoption of the following five measures:-

I. Introduction of an intensive twelve month training programme in co-operation with industry.

II. Introduction of three-year degree course in engineering.

III. Introduction of double-shift system in engineering colleges.

IV . Use of science departments of university colleges for the instruction of engineering students in science subjects.

V. Employment of experts to assist in teaching.

VI. Improvement of salaries of teachers.

15. (I) We recommend the introduction of an intensive 12-months training programme for M.Sc.'s and graduates in chemical technology to be run on cooperative basis, between different universities and relevant industries. We feel that some of the existing institutions, if assisted with suitable grants, capital and recurring, should be able to impart short-term courses to the technological graduates who can then be placed in appropriate factories for practical training for a further period of six months. For example, an ordinary M.Sc. graduate in applied chemistry can be trained in educational institutions in such subjects as oils and fats, paints and varnishes, etc., for a short period, say six months, to supplement his basic scientific training. The training programme can be shared by two or three institutions depending on the subject and the specialisation required; this academic training to be followed by practical training in a suitable factory for a period of six months or so. We consider that the following institutions are capable of organising such courses and recommend the grants noted against each:-

	Capital Grant (in Rs. lakhs)	Reucrring grant (in Rs. lakhs)
(1) Harcourt Butler Technological Institute, Cawnpore	5	1
(2) College of Technology, Hindu University, Benares	5	2
(3) Department of Applied Chemistry Calcutta University	7	2
(4) Laxminarayan Technological Institute, Nagpur ..	3	0.8
(5) University College, Andhra Unty.	3	0.5
(6) Indian Institute of Science, Bangalore	..	2
(7) Bengal Tanning Institute, Calcutta	1	0.5
(8) Institute of Leather Technology, Madras	1	0.5
(9) Engineering College, Guindy, Madras	2	0.75
(10) Department of Engg. and Technology Annamalai University	1	0.5
(11) Department of Chemical Technology, Bombay University	1	0.5

(12) Forest Research Institute, Dehra Dun	2	0.75
(13) College of Engineering and Technology, Jadavpur	2	1
(14) Victoria Jubilee Technical Institute, Bombay	1	0.5
Total	24	13.2

This recommendation on being given effect to will help to great extent in making good the present shortage of chemical technologists of grade B.

Edn. & P.H. Deptt. (A).

Education and P.H.Dept(A)

As regards items (5) (9) and(10) in the statement overleaf, the Andhra University, the D.P.I. and the Annamalai University may respectively be consulted as to whether the suggestions of the Committee in para 15(1) extracted overleaf may be given effect to in the respective institutions and, if so, to submit proposals for claiming from the Govt. of India, the grants mentioned against them. For orders.

2. The remarks of Development may be obtained as regards item(8) of the statement overleaf.

J.W.A.

8/5/48 A.S. III 7.5.48 MY 7/5/48

PTO

Devt Dept.

As regards item(8) of the statement overleaf on the previous page, Edn. Dept. may be requested to consult the D.I.E. on the suggestions of the Committee in para 15(1) on p. 7 above.

CPG 7.6.48

7/6/48

Recommendation of the Scientific Man-Power Committee in its Interim Report.

16, II. Introduction of three-year degree course in Engineering:

(II) At present, the courses in engineering extend over a period varying from three to four years. We have every reason to presume that with judicious selection for admission to engineering colleges, it should be possible to reduce the period of training to three years. We understand that the All-India Council for Technical Education have prepared a draft curriculum and syllabuses of studies which it should be possible to cover in three academic sessions of 1400 hours each as against the commonly prevailing four academic sessions of less than 1000 hours each. We, therefore, recommend that the universities should consider the introduction of three-year-degree courses in engineering. This would shorten the training period and also largely help in the increase of the number of engineers.

Education and P.H.Dept(A)

The Government have just constituted a Committee to workout details if the duration of the course is reduced to 3 years - please see G.O.No.1056 Edn. dated 30-4-48. This matter may lie over till orders are passed on the report of the Committee.

8/5/48 MY 7/5/48

PTO

Recommendation of the Scientific Man-Power Committee in its Interim Report.

17. III. Introduction of double-shift system in engineering Colleges:

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17(III) We have also considered the feasibility of introduction of double shifts in some of the colleges. We are given to understand that it was run with some success in the Thomason Engineering College, Roorkee during the war years. Elsewhere, in paragraph 4, we have stated the reasons for our reluctance to recommend the general introduction of double shift system. With the proviso stipulated therein we recommend that the universities may consider the introduction of double shift system, if conditions permit.

60

Education and P.H.Dept(A)

There are the following Engg. Colleges in this Province:-

Engineering College, Guindy A.M. College of Technology, Coimbatore	Madras University
Engineering College, Anantapur (Guindy)	
Engineering College, Vizagapatam (Cocanada)	Andhra University
Engineering College, Annamalai	Annamalai University

The question of introducing shift system in Engg. colleges does not seem to have been considered before. Work in Engineering Colleges, unlike in Arts Colleges, begins from 6-30 in the morning and goes on till 4 or 4-30 in the evening. Further, all Engineering Colleges are more or less residential colleges and unless hostel accommodation is ~~made~~ limited for all the students it does not seem practicable to start the shift system in Engineering Colleges. The D.P.I. may however be consulted.

8/5/48

PTO

Recommendation of the Scientific Man-Power Committee in its Second Report. 153

18. IV. USE OF SCIENCE DEPARTMENTS OF UNIVERSITY COLLEGES FOR THE INSTRUCTION OF ENGINEERING STUDENTS IN SCIENCE SUBJECTS.

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18(IV): Wherever possible use should be made of the teaching facilities of the science departments of suitable colleges to assist in the education in basic sciences for engineering students.

Education and P.M.Deptt(A)

This is done now in the case of the Arthur Hope College of Technology, Coimbatore and the Engineering College, Cocanada; the laboratory of the Arts College, Coimbatore, is used by the Arthur Hope College of Technology and the laboratory of the P.R. College, Cocanada are used by the Engineering College, Cocanada. No action is necessary. ~~and reconsidered~~

8/5/48 4/5/48 61

P.T.O.

Recommendation of the Scientific Man-Power Committee in its Interim Report

19. V. Employment of experts to assist in teaching:

19(V) As an interim measure we recommend that engineers in Government service should be encouraged, where necessary to assist in the instruction in engineering colleges. This would relieve the strain on college Professors and will save them some of their time for training additional students, who too will derive more benefit from the latest ideas and knowledge and appre-ciation of the latest developments in the various engi-neering activities.

Education and P.H.Dept(A)

The suggestion made above may be put to the D.P.I. and the C.E. who will no doubt offer their remarks, on the feasibility or otherwise of adopting the suggestion.

J.W.A

DPI 8/5/48

Sup 7/5/48 62

PTO

Recommendation of the Scientific Man-Power Committee in its Interim Report.

20,VI. Improvement of salaries of teachers:

20(VI) We understand that there is an acute shortage of teachers in most of the engineering colleges and this is mainly due to the inadequate salaries offered for teaching posts. We are definitely of the opinion that the pay and prospects of a teacher should correspond to those that would be open to him had he joined a technical department under the Government.

Education and P.H.Dept(A)

The following table shows the scales of salaries in Govt. Engineering Colleges and the P.W.D.

Engineering Colleges.

Principal	Rs 1000 - 75/2 - 1225 (Special scale of Rs 1250-75/2-1400-100/2-1500 for principal college)
Professor	Rs 600 - 75/2 - 900
Instructor	Rs 260 - 700
~~Senior Workshop Instructor~~	
Assistant Instructor	Rs 180 - 280.

(Since revised)

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P.W.D.

Superintendent Engrs.	Rs. 1000-100/2-1200
Executive Engineers	Rs. 500-50/2-850
Assistant Engineers	Rs. 260-30/2-280-40/2-500 *
Supervisors	Rs. 100-5-150-10-250*

* B.E. degree holders to select on Rs. 150
B.Ed. holders on Rs. 140.

It will be seen that persons employed in the Eng colleges are slightly in a better position in regard to pay than those employed in the executive line. No action is necessary on the recommendation.

8/5/48

PTO

Recommendation of the Scientific Man-Power Committee in its Interim Report.

Education & Technical

32. For this purpose and for the training of foremen and overseer type of personnel, the Government should take over some of the private engineering schools and develop them. We are not able to make any estimate of the financial implications of such a step, but we are convinced that the step recommended by us is the only possible way under the present conditions for quickly developing engineering schools for the training of overseer type of personnel and also for increasing the outturn of the number of craftsmen. Later on, in section III dealing with "Industrial Training" we have made further suggestions.

Education and P.H.Dept(A)

With a view to meet the urgent demand for subordinate Engineering staff the Government sanctioned recently the opening of an overseas course in the college of Engg., Guindy. The question of starting similar courses in the A.M. College of Technology, Coimbatore, and Cocanada Engg. Colleges is also under consideration. Besides, overseas are being trained in a number of polytechnics under the Industries Department. In the circumstances no action is necessary.

64

Dev Dept

The Govt have already ordered the opening of Civil Engineering Courses (new overseers course) in all the Poly technics under the Control of the Dept of Industries. Apart from that as already stated above, similar courses are being taught in Engineering colleges also. therefore no question of taking over some private engineering schools by Govt does not arise. With reference to the recommendations in Section III of the report, no action is necessary, as the draft Apprentices Bill is separately under consideration in this dept.

pp 16-17-4
Ch Secy
Pr Sec
29534 30/5/48

20

Office has missed the point. The suggestion of the Committee is that the Govt should take over some of the private engineering schools and develop them for producing the foremen and Overseer type of personnel required for industries. What is meant by this category of personnel is explained by them in paragraph 65 as "Semi-advanced or foremanship training" as opposed to "advanced practical training of graduates and to some extent research" required for 'A' grade men.

The relevant extracts will be taken from the report and the suggestion put to D I&C and further action taken in Dev.

CPG
9.6.48

TRAINING OF PERSONNEL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH:

53. The inadequacy of facilities for research, higher study and training in our universities and research institutions has been chiefly responsible for the present rather unsatisfactory state of development of both research and industry. To aggravate matters, many of our universities have not yet established well-equipped (both by way of staff and equipment) post-graduate research departments in the several fundamental and applied sciences. The only way in which ~~the outturn of trained scientific~~ way may improve the situation immediately and give impetus to an increase in the outturn of trained scientific workers is to tap the existing universities and research institutions by enabling them to expand their training facilities. We are also of the opinion that the rigidity of the system of training prevalent in certain universities and institutions should be removed and the system made more flexible and diversified so that a wider sphere of activity might be covered. For instance, universities which are well-equipped for research in organic chemistry should expand their activity to include bio-chemistry, fermentation chemistry and other allied subjects, and those having a well-equipped research school in physics should also take up geophysics. Similarly technical institutions which impart graduate and post-graduate training in mechanical and electrical engineering should be able to take up for example, communication engineering, chemical engineering, and other allied branches also.

E.P.H.(A)

65

With reference to 'A' above, there are courses in some allied branches such as Communication Engineering in the Guindy College. It will really be useful to open such allied branches as do not exist at present in all the Engg. colleges and for this purpose the D.P.I. may be consulted on 'A' above. A proposal to open P.H. Engg. has ~~sent~~ been referred to the D.P.I. for remarks.

The universities may also be consulted in the matter.

g.w.
s.q.

8/5/48

PTO

(A)-H-93

Recommendation of the Scientific Man-Power Committee in its Interim Report.

55. We consider that the existing centres of research are capable of being better utilised than at present for the training of personnel for scientific and industrial research. Such training should be of two general types, viz., (a) higher research and to some extent advanced technological training in special institutions; and (b) post-graduate education with research also leading to a post-graduate degree in Indian universities.

A1

To take the former into consideration first, there are 30 special institutions as mentioned in appendix 'A' of Sir S.S. Bhatnagar's note (Part II, Chapter I) catering for a wide range of subjects both in the fundamental and applied sciences. We, find that a large number of these are fairly well-equipped and well-established research centres; and some like the Government Test House, Geological Survey of India, Ordinance Laboratories, etc., are scientific departments of the Government. Although these latter institutions carry out mostly routine scientific work, as distinct from research they could become no less important as training centres. For scientific workers trained in these places would be useful not only for certain types of research in specialised fields but also if needed in the manning of the departments concerned.

S.P.H.(A)

The list referred to at 'A' above will be found on pages 39-40 of the Report. This Govt. is concerned only with the following institutions found in the list:-

66

S.No.in the list.	Name of Institution	Subjects.
8	Nutrition Research Institute, Coonoor	Nutrition Bio-chemistry
12	Provincial Industrial Research Laboratories	Industrial Research
20	Sericultural Research Station, Kollegal	Sericulture silk spinning (weaving and dyeing)
30	P.W.Deptts of(Central and Provincial Govts.	Structural, Highway and Irrigation, Engg. and Design.

83-04 R1

2. Dev. have stated in another connection that there is no Industrial Research Laboratory in this Province. Any way they may see regarding this (item 12 above) as well as item 20.

3. P.W.D. may be consulted re: item 30 above.

J.W

8/5/58

PTO

24.

DEV DEPT

R on p23 above.

The proposal to establish a Regional Sericultural Research Institute at Kolegal is under the active consideration of the Govt. The Govt of India have agreed to contribute half the non-recurring cost involved on the Scheme.

C No 38820(A) D/48 in On.

CPG
7.6.48

PWD (L)

J.N.S

So far as this deptt is concerned, there is only one Research Institute. ie. Irrigation Research Station at Poondi. The recommendations of the Committee may be forwarded to the CE. for remarks & action taken separately

26.6

SV 25/6/48 25/6/48

25.

Universities.

The universities constitute the main source of supply of science graduates and I.Sc's required for specialisation in special branches of science including the agricultural sciences; and it is to the universities that we must look for an increase in the output of such trained men. The remarks already made about the variability and low standard of teaching apply in some measure to the universities also. Besides expansion of what is being done at present in the way of training, it is necessary to effect improvement both in the variety and the standard of the subjects taught. An aspect of the de-velopment of scientific training which requires immediate attention is the desirability of introducing something like the 'unit' system prevalent in the U.S.A. This will enable a greater flexibility in the choice of subjects for degree courses as also for supplementary courses of instructions.

67

Many braches of science are neglected or even entirely omitted. For example, most universities teach Botany but this is done in a general way and systematic botany is not given proper attention. The science of genertics which is so important for a proper study of living things if taken up at all, is finished in four or five lectures. Numerous such examples could be given. The result is that students who are admitted for post-graduate courses in the agricultural sciences such as plant breeding, plant pathology, agricultural entomology, etc., do not possess adequate basic knowledge necessary and teaching has to be started from the bottom with the natural result that the standard of training cannot be raised.

As in the case of the agricultural colleges, action which may be taken immediately to increase the output and improve and devise the training is to provide addi-tional teachers and increase the grants. It is suggested that a bloc grant equivalent to the total expenditure for one year should be immediately given to each univer-sity. They should be permitted to carry over to the next year what they cannot spend within the next six months; such bloc grant will enable comprehensive schemes to be drawn up which will be considered later in detail.

The members of the Manpower and Technical Committee which it has been recommended should go round the agri-cultural colleges should visit the universities also and make an estimate of their possibilities of improving output as also diversification in so far as they concern agricultural subjects. The Council for Agricultural Edu-tion will have so as one of its functions the development in the universities of basic sciences related to agricul-ture.

Education and P.H.(G.S.)

This is a matter concerning the Development Deptt.

The remarks of that Department may be invited u.o.

S.G.

9.5.48

Dev. Deptt.

Edn. & P.H. may be requested to consult the D.A. in the matter & take action as proposed in their U.O. 4.5.48

We may note the P4 8/5/48

68

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Extract from Scientific Man-Power Committee Interim Report.

***

7. Geological Education:- In particular, we strongly support the recommendations of the Geological Education Committee and urge the Government to give effect to these recommendations immediately, so that trained geologists, adequate in number, say about 80 per year for the teaching of geology and for the survey and development of the mineral resources of India, may become available; for example, the Geological Survey of India alone will require within the next two or three years 150 geologists.

8. In regard to the training of geologists, there is one special aspect which cannot be passed over. The education of a working geologist is different from that of any other scientist. A systematic field training forms an essential part of a geologist's education. This kind of instruction could hardly be provided by universities and colleges. We understand that the Geological Survey of India will soon have adequate staff to help educational institutions by opening field training camps to supplement the education of our geology-graduates. We recommend that the Geological Survey should increase the number of their field training camps in order to train at least 50 geologists annually for field work (For details see Mr. Wadia's Note.)

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Chapter VII

Programme for provision of facilities for education, training and research in GEOLOGY and MINING which can be initiated within the next six months.

By D.N.WADIA.

Facilities for advanced geology education and research, unlike those for the physical and bilogical sciences, were, until very lately, practically nonexistent in Indian Universities. That was largey because, prior to war, there was hardly a demand for five geologists a year and notmore than double that number of mining men, all for subordinate positions in industry, teaching line, and very rarely in Govt. employ.

69

2. Within the last 7 or 8 years, there has sprung up a sudden increase in this demand - over 400 to 500 percent and the few existing geological training institutions, namely some five universities and the Indian School of Mines, have been had put it to meet this sudden increase in intake. Up to 1940 there were only four universities which had geology departments, equipped for teaching up to B.Sc.(Hons.) or M.Sc.standard, but which possessed insufficient means for giving practical field geological training. Since 1940, four more universities (Andhra,Lucknow, Patna and Nagpur) have instituted geological faculties, though these are also not in a better position than the older universities for providing adequate facilities for post graduate research as well as an efficient system of practical field training.

3. The education of working geologist is different from that of other scientists and demands not only class room and laboratory teaching, as in other sciences, but also a s stem of field training and instruction in the open country, requiring prolonged camping seasons in distant geological proviced and mining areas- a type of instruction which is rather costly and out of the common and few of our colleges anduniversities were and even yet are in a position to provide efficiently. The Gelogical Survey of India is the only agency that can help the educational institution in this post-graduate training in the field to supplement the purely academic education of the class-room. The limited facilities at the command of the Gelogical Survey, however, for this purpose have been fully taxed in training their own recruits which have of late largely multiplied.

4. It is from this background that the question of man-power in Geology has to be viewed. The pre-war set up being so unsatisfactory for providing to the country the right type of geologists, Govt. directed its attention in 1944 to improve the situation. In 1945 two committees were formed - the Geology Education Committee and the Indian School of Mines Reorganisation Committee with the object of improving Geology and Mining Education and increasing the output of properly trained personnel. These two committees have completed their work and submitted their reports, recommending measures for securing the desired results within the coming five years. The recommendations of the Geology Education Committee for help to geology departments of universities, viz. financial grants, procuring of laboratory apparatus, camp equipment and in the training abroad of one member of the tutorial staff, side by side with suggestions for management and strength of classes, limit of number of students and length of different courses, are likely to result in increase in the number of graduates and post-graduates in Geology, to a level more or less in keeping with the demand, and also improve the quality of the turn out. The Indian School of Mines, after the suggested reorganisation of its staff, buildings, laboratory extensions and revised courses of underground training, will turn out double the number of qualified mining engineering graduates, which it is doing at present (a target figure of 48 per year plus 12 Applied Geology

students). The standard of training and practical instruction imparted to these mining men who compare favourably with that of foreign mining schools, both as regards theory and the practical training.

5. Since the present sub-committee is called upon to framea programme for provision of facilities for education, training and research in Geology and Mining which can be initiated within the next six months, it cannot do better than ask for a speedy implementation of the two reports that have lately been presented to Govt. (1) by the Geology Education Committee in October 1946, and (2) by the Indian School of Mines Reorganisation Committee in June 1947. Both these reports have suggested procedure and programme of requirements and recommended facilities to be provided for improving the quality and quantity of trained geological and mining personnel that will be required soon for manning the expanded Geological Survey of India, the various mineral industrial development projects and mining and metal industry of the country.

6. The effect of these measures, if quickly implemented will be to produce, on an average, about 64 qualified mining and metallurgy graduates per year (48 from Dhanbad School of Mines plus 16 from Benares Hindu University) after 1950, and between 70 and 80 Geology graduates annually of M.Sc. and B.Sc.(Hon.) standard (60-70 from the universities plus 12 from Dhanbad School of Mines) The quality and grade of instruction provided in the revised schemes at these institutions, however, though considerably improved, will not be such that the trainees can go into direct employment without at least six months of field experience and training in method of geological survey and mapping. For this, extra provision and training in mekkax isnecessary and the present Scientific Manpower Committee should make recommendations, to Govt. to this effect.

This field course constitutes the most difficult part in the training of geologists, but it is quite necessary and must be imparted during their final year of study, or immediately after their passing out. The only satisfactory way of imparting this practical training, under present day conditions prevailing in India, is to assign the freshly passed graduates to the various field parties of the Geological Survey, for at least one full field season. Parties of 3 to 5 men thus be assigned to 10 working field parties every year. Similarly a small number of students, during the latter part of their course, may be assigned to the vacation Mining Camps of the Indian School of Mines, Dhanbad, for securing practical experience of undergroundminding methods. The cade of Geologists in the Geological Survey of India when it is comple by the addition of 14 new recruits this year, will be able to spare fairly senior officers, who can superintend this work of giving to fresh university graduates thenecessary field training and practice in geological mapping., survey methods etc.

7. I would, however impressupon the sub committee that the combined demand of India for Geology and mining men will always be within rather narrow limits. I do not anticipate that, with all the new development projects in active operation, the total demand, within the next five years, will exceed 400 fully qualified geologists and mining engineers. Once the target of 150 geologists to be recruited for the Geological Survey of India within the next few years, is completed and the requirements of educational institutions expanding under Govt. grants scheme are satisfied, itis probable that the increased out-turn of geology M.Sc.'s and post-graduate researchmen and mining engineering men from the Indian School of Mines as well as from the improved mining faculty of the Benares Hindu University, may more than saturate the field of employment in these subjects, unless Indian mininmg industry take a phenomental turn. We should therefore be careful to see that no over-multiplication of highly specialised men in these two

subjects is not produced. The present programme may, therefore be considered adequate to meet the demands of the next five years, at the end of which a fresh stock of the situation may be taken.

8. In the above paragraphs, consideration is given only to the requirements of higher ranks of professional geologists and mining men. But in a modern State, Civil Engineering, Agriculture, Soil Science, Irrigation and Underground Water Supply need knowledge of geology as an essential subsidiary, and provision for imparting this elementary geological instruction has to be made. The revised B.Sc. Geological courses of our Universitites and Colleges (which will now number about 12) and the Geology courses usually given in the Engineering and Agricultural Colleges will ordinarily meet the demand for this type of instruction both as regards theory and the practical side. Civil Engineering and Agricultural Colleges are being modernised and re-equipped and Govt. is giving special grant to such institutions as the Jadavpur Engineering College, this will doubtless improve the facility for gelogy teaching in the non-specialist institutions.

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INTERNATIONAL ASSISTANCE TO GOVERNMENTS
28 JUN 1948
DEVELOPMENT DEPARTMENT

Education and Public Health Deptt. (A)

From the Government of India, Ministry of Education,
No.F.21-64/47 -E.III(P) dated 5-2-1948.

...

Sub: Technical Education - Scientific Man-power Committee appointed by the Government of India - Recommendations regarding change of curricula in Universities and development of existing facilities for scientific and technical study.

... 72 71502

Please see the Government of India's letter at page 1 c.f., This Department is concerned with paras 4, 5, 6 14 to 20, 32, 53 and 55 and the paras under 'Universities' on pages 1-2, 4-5, 8, 12, and 55 of the Report. These are examined in the Sectional Notes below. After orders are passed in the Sectional Notes, necessary drafts will be submitted.

2. Development Department is concerned with para 7 and 8 on page 2 of the Report, paras 32, 33, 35 to 39 on pages 8-9 of the Report and the paras under "The Agricultural Colleges" on pages 52 to 55 of the Report. The file may be sent to them for taking necessary extracts for separate action by them. They will have to see regarding para 2 on page 8 of the Sectional Notes page 19 of the Sectional Notes and page 25, para 2 on page 23 of the Sectional Notes. P.W.D. will have to see regarding para 3 on page 23 of the Sectional Notes.

A draft letter and two draft memo with reference to the orders on pages 5, 8, 11, 15 and 21 of the sectional notes are submitted. After issue the file may be sent to Development and P.W.D. as marked.

Development Department.

To A.S.

'M' on page 1 ante.

Please see the notes of E. & P. H. department at page 1 ante. D.II., J and A.IV and D.I Sections of this Department are concerned with certain recommendations of the Scientific, Man power Committee. Copies of this note together with relevant extracts of the Report of the Scientific Man power Committee may be given to concerned section of this department for necessary action. Section will kindly note their remarks on the sectional notes with which they are concerned. With these remarks this may be passed on to P.W. Department.

Action as suggested in page 20 of Sectional notes to be taken in Development.

C. P. C.
7-6-1948.

subjects is not produced. The present programme may, therefore be considered adequate to meet the demands of the next five years, at the end of which a fresh stock of the situation may be taken.

8. In the above paragraphs, consideration is given only to the requirements of higher ranks of professional geologists and mining men. But in a modern State, Civil Engineering, Agriculture, Soil Science, Irrigation and Underground Water Supply need knowledge of geology as an essential subsidiary, and provision for imparting this elementary geological instruction has to be made. The revised B.Sc.Geological courses of our Universities and Colleges (which will now number about 12) and the Geology courses usually given in the Engineering and Agricultural Colleges will ordinarily meet the demand for this type of instruction both as regards theory and the practical side. Civil Engineering and Agricultural Colleges are being modernised and re-equipped and Govt. is giving special grant to such institutions as the Jadavpur Engineering College, this will doubtless improve the facility for geology teaching in the non-specialist institutions.

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28 JUN 1948

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Paras 35-39 on pp.9-10 and pp. 52-55 of the Report of regarding Agricultural Education:- Facts of these paragraphs with a copy of Government of India's letter on page 1 c.f. should be taken by A.IV Section and referred to the D.A. for remarks and proposals, as desired in India letter. Dr. Mukherjee's note on Agricultural Colleges at pp.52-55 is interesting. E.& P.H. should see after D.A.'s remarks are received as the co-operation. ~~xxxxxxxxxx~~ of the Universities will also be required.

In February 48 the D.A. wanted a copy of the Interim Report but he was told that no copy was received from the Government of India. E. & P. H. may kindly obtain and furnish the D.A. and this Department a copy each.

N.M.M.
13-6-48.

S.G.A.

C.V.N.
15-6-48

W. R. S.
17-6-1948

True extract.

Superintendent 28/6/48

O2
28/6/48

Dev(I) 5

To A.S.

The notes of E.P.H. and the Department extracted on pp 1-3 above may be perused. This section is concerned with the Committee's recommendation No 8. Extracts on p1 Cy. 1 Mr Wadia's note referred to at X on p1 Cy. has not been enclosed. E.P.H. may be requested to put up a copy of the note for taking further action in the matter.

Dev
10.7.48

51803

Dev.v.o.71523/48-1
12.7.48

10.7.48

Pl. see the note of Dev. above. Dr to Mr Wadia's note referred to therein will be found on pp 106-108 of the Interim Report of the Scientific Manpower Committee kept below

6

Dev may be requested to take a copy of the note and return the Interim Report to this Dept urgently as it will be required for constant reference in this Dept.

22/7/48
Mm
29/7/48

Dev
28/7/48

Dev
82133

Edn U.O. 5/803 A/48-I
26/7/48

P.T.O.

Dev (J)

To A.S.

Extracts of E.P.H. notes and this Department's notes at ff 1-3 above may be perused. The above extracts were given to this Section for taking necessary action on paragraphs 7 & 8 of the Committee's Report.

2. The Scientific man-power Committee was set up by the Govt of India - vide f (iii) of the Introductory chapter of the Report. The terms of the reference of the Committee have been given at f (iv). of the same chapter of the Report. It is purely for the Govt of India to take action for the implementation of the Committee's recommendations.

3. As regards paragraph 8 on f 2 of the Report, it may, however, be noted that this Govt proposes to address the Director, G.S.I., to make arrangements for enabling the Geology students of Presy. College, Madras to undergo field training course with the geological officers working in the Southern circle. No further action seems called for so far as the Students studying geology in South India are concerned.

4. Even though it is proposed to take action on paragraph 7 of the Report so far as the Universities in this Province are concerned this is entirely a subject for the E.P.H. to take necessary action

P.T.O.

cf A & M on f 1 above

cf p 1 c 7 above

Separate file

9/

in consultation with Development, if necessary. ~~xxxxxxxxxxxx~~ papers may be lodged after perusal by F.P.H.

Re 9.8.48 ~~xx~~ 824 and Reminder Letters to be put by F.P.H.

Re 13th Sept 48 (A)

ASST. SECRETARY TO GOVERNMENT
EDUCATION AND PUBLIC HEALTH DEPT.
6140
11 AUG 1948

The file deals with recommendations 7 & 8 on p2 of the Interim Report of the Scientific Manpower Committee appointed by the Govt. of India. The notes of Development on p7-8 above may be perused.

Recommendations 8: Dept. are separately addressing the G.O.I. to make arrangements for enabling the Geology students of the Presidency College, Madras to undergo field training course with the Geological officers working in the Southern circle. No further action is called for in this Dept.

Recommendation 7: The question of giving effect to the recommendations of the Geological Education Committee, which is urged here, is one for the Govt. of India to act upon. No action is called for on the part of this Govt.

2. The papers may be added to the main file ~~of this Dept. on the subject dealing with the Recommendations~~

K 11.9.48 / 13/9/48

DM 14/9/48

K 4.8.48

with a book. - S. M. Power Committee Report

(vide para 3 at page 7 ante)

L.7. C.M/16648/48