Edu. Dept

G.O. No. 1078 M.S.

dated 4-4-50.

(1)

G.O. 2515 Edn
4-10-48

G.O. 1253 Edn
17-5-48

(V)

D.O.

Presidency College, Madras,
14th January, 1949.

My Dear Avinashilingam Chettiar,

I am writing this letter with reference to the conversation we had when you very kindly visited us yesterday morning.

I was well aware of your desire that the Committee should meet and submit its recommendation to you as early as possible. Various circumstances, however, which I need not detail here, made it impossible for the Committee to meet in November as originally planned. We commenced our first sitting on Monday, the 10th January, 1949, The last four days have been devoted to a survey of the existing situation and of the steps necessary to achieve the aims which the Government have in view. I should have liked the Committee to continue its sittings until the final report could be prepared and signed. Here again unfortunately circumstances have not allowed of this. The Committee is meeting again on the 7th February, and will continually sit till the 12th February. We are quite hopeful that at the end of that period we will be able to submit to you a final report embodying the results of our labours. We gathered from what you told us that it was necessary f or you to have in your hands at once an estimate of the probable expenditure for implementing the scheme of reorganisation during the next financial year. We are most anxious that when our report has been received and considered by the Government, as little time as possible should be lost in implementing the recommendations. At the same time no estimate could be put forward without detailing the considerations on which it is based. We feel therefore some difficulty in giving a detailed estimate in advance of our final report. Nevertheless I propose to give tentative figures.

In my file I find that the Government are agreeable to the creation of certain number of posts as Chief Professors on special grade of pay in lieu of the existing posts. The question of how

far such a substitution can be given effect to and its probable effects on the teaching activities of the departments are under active consideration of the Committee. This question and others relating to the proposed new posts, qualifications to be prescribed for the incumbents, the manner of their selection and their duties are being considered by the Committee and will be dealt with in the report. We are inclined to feel that any sudden wholesale change in the staff might not be in the best interests of the institution. At the same time we are convinced that the higher staff of the College is to be substantially strengthened. We notice that at present the staff of the College includes 19 persons who are designated as Professors or Additional Professors. However only two of these draw salary exceeding Rs.500/- while the rest have the salaries averaging about Rs. 313/-. Considering these circumstances, we feel that the creation of eight new Professorships, one for each of the major subject of study, will be fully justified, and that an average salary of Rs.750 exclusive of other allowances would be required for attracting men of requisite calibre for these posts. Besides these new Chairs we feel that provision should be made immediately for a liberal system of research fellowships and scholarships to enable the activities of the College to develop on healthy lines. Moreover, substantial additions to the equipment, library facilities, etc. will be necessary to all the departments. We shall give details of these in our report. We request that a non-recurring lump sum grant of two lakhs of rupees be provided for these in the next year's budget. The cost of implementing these proposals during the next financial year would be as follows:

PARTICULARS.	AMOUNT.	MONTHS.	NUMBER.	TOTAL AMOUNT INCLUSIVE OF ALLOWANCES
Chief Professors.	Rs.750	9	8	67,500
Research Fellows.	250	9	6	16,875
Senior Studentships	150	9	8	13,500
Junior Studentships	100	9	16	18,000
			Total.	115,875
Cost of additional equipment.				200,000
				Rs.315,875

Yours sincerely
(SD.) C.V.RAMAN

To
Hon'ble
Sri T.S.Avinashilingam Chettiar,
Minister for Education, Govt. of Madras.

COPY

E. & P. H. Dept. (A)

LETTER REF. NO. (4) , DATED

To

The Secretary to the Govt. of India,
Ministry of Finance, (Planning Branch),
~~NEW DELHI~~. thro:-
The Secy to the Govt of India,
Ministry of Edn
New Delhi
(with enclosure)

Sir,

Sub:- PRESIDENCY COLLEGE, MADRAS - REORGANISATION.

The Govt. have decided to make the Presidency College, Madras, a premier institution for research and higher learning. With this view, the Intermediate classes in the college have been transferred to the Govt. Muslim College, Madras. No students have been admitted to the Junior Intermediate class in the Presidency College this year. Only the Senior Intermediate classes are now working in the College. By July 1949, the entire Intermediate classes will be transferred from the Presidency College, Madras, to the Govt. Muslim College, Madras. The Presidency College will then have only the Pass and Honours Degree courses. With the complete removal of the Intermediate classes from the college, there will be considerable room for increasing the strength of the existing Pass and Honours classes as well as for opening new courses.

2. To suggest measures for the reorganisation of the college so as to provide for higher teaching and research the Govt. have appointed a Committee under the Chairmanship of ~~Sir~~ Sir C.V.Raman. A copy of G.O.No. 2515-Edn., dated 4-10-48, constituting the committee is enclosed. The Committee held its first sitting in January 1949 and will be meeting again this month. When asked to give a rough idea of the cost that the Committee's proposals may involve so as to enable the Govt. to make provision in the Budget, ~~Sir~~ Sir C.V.Raman, the Chairman of the Committee has stated that an amount of about Rs.3.16 lakhs may be required. The Govt. are accordingly taking steps to include in the Budget for 1949-50 an amount of Rs.3.16 lakhs for the purpose of

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Deut (Post) Dept.

The notes of D.P.H and the orders in circulation on p.1 ante and the draft letter to the Govt. of India, below may be perused. In the file relating to the grant to the St. Christopher college, this department had pointed out that the proportion of Educational schemes in the programme for 1948-49 exceeds the proportion suggested by the Govt of India, it will not be possible to include any more Schemes relating to the Educational Department in the programme. However, in view of the Cabinet decision extracted on p.1 ante, this department need not object to the inclusion of this Scheme in the programme, provided the Govt. of India agree.

Slight alterations are indicated in pencil in the draft letter. The file may be passed on to Finance.

19/2/49 19/2/49.

Dev. U.O. 1758 P.D.IV/49-1
21-2-49.

Finance (E III)

The Copy of the D.O. letter from Sri. C.V. Karan to the C.S. and the notes of E.P.H. & Dev. deptt. on pp. 1-2 above may be perused. The Case relates to the reorganisation proposals of the Residency College, Madras, so as to provide for higher teaching and research in the College.

The draft letter to the Govt of India below may be accepted.

23.2.49 23.2.49

24.2.49

FIN.U.O. 11520/E III. 24.2.49

ASSISTANT SECRETARY TO GOVT. 11520 21 FEB 1949 FINANCE DEPARTMENT

ASST. SECRETARY TO GOVT. 26 4855 EDUCATION DEPARTMENT

Thro. Dy. Sec. Exp. C. Mis.

3

E III/3 (6) E. & P. H. (A)

The Presidency College Reorganisation Committee has since submitted its report and the remarks of the D.P.I. and the University of Madras were handed invited. The D.P.I. has just submitted his remarks. (He is against some of the main recommendations of the Committee.) It will take some time for the University's reply to be received and for Govt. to examine and take decisions in the matter.

It does not seem that the Govt. of India need be addressed to approve the reorganisation scheme of the Presidency College as a post-war scheme until the Govt. examine the report and take their decisions on it. The recommendations made in the report contemplate drastic changes in the college set up & organisation and control (e.g. a Governing Body is to be vested with supreme authority over all matters including that of selection of candidates for appointments, etc. and Govt. are to be practically deprived of all control over the college) and it cannot be said at this stage what will be the final decisions of the Govt. on the report. Moreover the Govt. of India themselves will like to have the views of this Govt. or rather decisions of the Govt. on the report, before they proceed to examine it, approve it as a Post-war scheme and finally commit themselves to a half grant towards expenditure on the scheme. In the circumstances, it seems that the Govt. of India may be addressed only after this Govt. take decisions on the report. The file may lie over till then. Dev & P.H. and Finance may see before circulation be circulated to H.M.(Edn.) for orders.

ASSISTANT SECRETARY TO GOVT. 1975-E III 24 MAR 1949 FINANCE DEPARTMENT

6 11.3.49 11/3/49.

T. P. H. U.O. 2194 A-2/49 A dated 15.3.49

12/3/49 S

Dev (P+D) Finance Dev. (P+D)

Dev 28628 P.D.IV/49 16.3.49 Dev.

FOURTH ASSISTANT SECRETARY TO GOVT. 16 MAR 1949 DEVELOPMENT DEPARTMENT

(Previous Dev. note at p.2 above) May be perused and passed on to Finance.

14.3.49 14.3.49 S.

Finance(EIII) Deptt.

(Previous Finance note on p.2 above)

Further note of E & P.H on p. 3 above may be perused and the case returnedx to that department.

No remarks seem called for in this department at this stage.

Dev.U.O. 28628/P2&2V/49-1, 23/24.2.49.

24303 Mrs P.W.R.

C&R 26.3.49

A/S 27/3/49

Sopm

IM.U.O.19759/EIII-1

28.3.49

ASST. SECRETARY TO GOVERNMENT EDUCATION AND PUBLIC HEALTH DEPT. 20 MAR 1

The file may be kept till Govt. consider the Committee's report and arrive at final decisions.

29.3.49

31/3/49

No final decisions have yet been taken on the Presidency College Reorganisation Committee's report. It may take some more time. These papers need not be kept open further. They may be recorded. (A call will be noted against 1-6-50)

Call noted.

Abstract.

Colleges-Presidency College, Madras-Reorganisation scheme-Addressing G.O. for approving it as a P.W. charge-Papers recorded

6

30.3.50.

1.4.50

4/4/50

G.O.Ms.1078 Edn. I

4-4-50

REPORT OF THE PRESIDENCY COLEGE RE-ORGANIZATION COMMITTEE.

I. Preamble.

The Government of Madras, when appointing the Committee for the re-organization of the Presidency College gave the terms of reference as follows:-

(i) To report on the possibility of developing the College as an Institution for higher teaching and research;

(ii) To suggest ways and means that may be followed to achieve that end.

In a subsequent memorandum the following item was added to the terms of reference:

(iii) To suggest the qualifications to be prescribed for the person appointed as Principal of the College.

(2) In addition to these terms of reference, the Principal of the College has been kind enough to supply us in advance with particulars regarding the running of the College, and details regarding equipment and staff, in the various departments. He has also supplied us with the Confidential G.O. of the Government of Madras sanctioning 6 posts of Chief Professors in the Madras Educational Service on a scale of pay of Rs.300-50/2-700-75/2-1000 for the current year. During our deliberations we visited the various departments and discussed with the heads of those departments about the possibilities of development in their respective subjects.

(3) The terms of reference are wide enough to include all aspects of the problem of re-organization, namely, administrative, academic as well as financial, and we have therefore considered the problem in all those aspects,

(P.T.O.)

keeping in mind the history and traditions of the College as an educational institution.

(4) The Presidency College is over a hundred years old, and in the course of its long history has rendered great services to the cause of education in the Province of Madras. Amongst its alumni are to be found many who have gained distinction in different walks of life, and helped to sustain the reputation of the College as a centre of learning and culture. In particular, there have been not a few who have achieved high reputations in the fields of scholarship and of scientific research. Nevertheless, it must be admitted that research has not in the past played as prominent a part in the activities of the College as was desirable, and that in recent years research has dropped out from the programme of work of several of its departments of study. This is a situation which clearly cannot be considered as satisfactory. In the context of the present time, the most useful purpose which the College could serve in the larger interests of the country is to produce in reasonable numbers highly trained men in various branches of knowledge, including the humanities, as are now needed for national development. We are, therefore, in entire sympathy with the idea expressed in our terms of reference of developing the College mainly as an Institution for higher teaching and research. Madras badly needs an Institution with such aims. At the same time, we feel that the century-old function of the College as an Institution for general education cannot be wholly abrogated. While, therefore, we welcome the decision of the Government to abolish the teaching of Intermediate classes in the College, we are of opinion that a similar step need not be taken with respect to the B.A. and B.Sc. classes. We feel, however, that only such students as can benefit by the superior type of opportunities now contemplated should be

(CONTD.)

admitted to these courses, and not in such large numbers as to form a burden to the staff engaged in higher teaching and research.

(5) The success of any scheme of re-organization depends on the possibility of the College securing the services of highly competent teachers and of providing such opportunities for work as will enable them to function usefully. We have devoted much time and thought to those questions, and worked out a scheme by which we hope that the aims in view will be realised in due course of time. However, at present, there is a great demand for qualified men and in particular a serious shortage of scientific man power in the country. Hence, we do not think it at all likely that our scheme could be implemented in its entirety forthwith, even if the necessary funds be made available at once. The scheme, therefore, would have to be implemented in stages as and when teachers of the right type become available. Meanwhile, the work of the College will have to go on and it will therefore be necessary during an interim period to utilise the services of the existing staff in the best manner possible.

II. The Governing Body of the College.

(6) The aim which we have held in view in drafting a scheme of re-organization is that of developing the Presidency College into an Institution where the quality and the standard of higher teaching are comparable with those in any Institution of a similar nature in any part of the world and to encourage original research of a high order. The practical achievement of these aims involves the solution of many difficult problems, academic, administrative and financial, requiring much thought and close attention. Some of these problems have already been indicated in the foregoing paragraphs, namely, that of selecting teachers having the requisite character and ability and of fitting them into the

(xi) One person who has rendered eminent services to the cause of education to be nominated by the Government.

Nominated members will serve for a period of three years. The Chairman of the Governing Body would be nominated by the Government from amongst these eleven members.

We are convinced that the Governing Body, constituted as above, representing all branches of knowledge and educational administration would be able to develop the College as a first class Institution for higher teaching and research.

9. Meetings of the Governing Body.

1. The Governing Body will ordinarily meet once per term.

2. Other meetings can be called either by the Chairman or by a requisition sent to the Chairman by three or more members.

3. Five members shall form a quorum for its meetings.

4. The Secretary to the College will also act as Secretary to the Governing Body but will not be a member.

10. Powers of the Governing Body.

(i) The Governing Body will have full powers with regard to the general administration of the College.

(ii) It will apply for and receive grants from the Government on the block system and allot them to the various departments.

(iii) The Governing Body will receive and administer endowments from private individuals and public bodies for the purposes of the College.

(iv) It will have powers to advertise for the posts of Principal, Professors, Assistant Professors, etc., appoint selection Committees to choose the most suitable candidates, and appoint them with the concurrence of the Government.

(v) It will have powers to establish new Chairs for new branches of study, put up buildings, buy capital equipment, etc., out of the grants received from the Government.

(vi) The Governing Body will award Research Fellowships on the recommendation of the Senatus.

(vii) The Governing Body will prepare an Annual Report on the activities of the College for the preceding twelve months which will be forwarded to the Government.

(11) We are of the view that every effort should be made to create a tradition whereby the Governing Body will have wide powers with regard to the College and the Government would not ordinarily interfere in its work. The approval of the Government for confirming appointments, etc., should be of a formal nature.

III. The Senatus.

(12) In order to co-ordinate the work of various departments of the College, the heads of departments should be formed into a body to be known as the Senatus with the Principal as Chairman. The Secretary to the College will act as Secretary to the Senatus but will not be a member.

(13) Powers of the Senatus.

(i) The heads of the various departments will submit their annual budget to the Senatus who will examine them and pass them on to the Governing Body with their recommendations.

(ii) The Senatus will also examine any new proposals and forward them to the Governing Body for consideration.

(iii) The Senatus will award research scholarships on the recommendation of the heads of Departments.

(iv) The minutes of every meeting of the Senatus will be forwarded immediately to the Governing Body and will be brought before the next meeting of the Governing Body for record, comment or action as may be needed.

(v) On the basis of material furnished by the heads of departments and consolidated by the Principal, the Senatus will prepare and forward to the Governing Body for

for information at each of its ordinary meetings, a brief report on the activities of the College in the interval, including especially progress in research work and its publication.

(14)We consider it essential that in course of time, certain conventions should be developed between the Senatus and the Governing Body so that the Senatus will act in an advisory capacity on all matters concerning the College and the Governing Body will be able to act on that advice. Since the Principal will be Chairman of the Senatus and also a member of the Governing Body, he will be in a position to act as a co-ordinating link between those two bodies.

IV. The Principal of the College.

15. The Principal would be the academic, administrative and financial head of the College.

16. The Principal should have qualifications similar to those which we have indicated as necessary for a Professor and have a teaching experience of at least ten years. He must be a person of academic eminence and should preferably have some administrative experience.

While ordinarily the claims of the Professors should be considered for the Principalship, it should also be open for the Governing Body to recruit directly from outside.

17. He should act as a unifying and co-ordinating influence on the various departments so that the College will be a properly integrated educational unit instead of just being composed of individual departments. He should be a man of high distinction in the educational sphere in some branch of study that is being taught in the College and should be given opportunities for research in that branch if he so desires. He should not, however, be the head of any department.

18. In order that the Principal may effectively carry out his duties, we are of opinion that he must be

be relieved of much of the routine work that is attached to the post at present. To achieve this, a Secretary to the College should be appointed. He would be in charge of such routine matters as preparing time-tables, checking accounts, etc. The Principal may also delegate other matters to the Secretary with the permission of the Governing Body in order that he might concentrate on matters of vital importance to the College.

19. We would recommend that the salary of the Principal be Rs.1250/50-1500 plus an entertainment allowance of Rs.250/- per mensem. This allowance is suggested since we feel that in order to promote a friendly atmosphere in the College and to act as an adviser, the Principal should entertain both students and staff periodically in small batches, and thus have opportunities of meeting every student and member of the staff informally.

V. The Secretary to the College.

20. The Secretary to the College will be selected by the Governing Body after due advertisement and consideration of the applications received. He will then be appointed with the concurrence of the Government. We would recommend that the scale of pay of the appointment be fixed at Rs.500-25-750.

21. Duties of the Secretary:

(i) The Secretary of the College will be in charge of all routine matters connected with the College.

(ii) He will also perform such other duties as may be assigned to him and generally assist the Principal in the administration of the College.

(iii) He will keep records of the proceedings of the Senatus and of the Governing Body and act as Secretary to these bodies but will not be a member of either body.

(iv) It will also be his duty to assist the heads of various departments to get equipment, stores,etc.with the

the least possible delay and provide them with clerical assistance whenever necessary.

VI. Professors.

22. We are of the opinion that the special scale of pay announced by the Government for the Chief Professors, namely, Rs. 300-50/2-700-75/2-1000 is not such as would suffice to attract to-day persons having the requisite qualifications. It is most essential that men who are appointed Professors under the re-organisation scheme should be men of real distinction capable of a high standard of teaching and of directing research. The success of the scheme will depend ultimately on the type of men appointed as Professors, and therefore, most careful consideration should be given to the qualifications of those who are to be chosen. We, therefore, recommend a scale of pay of Rs.500-50-1000, the initial salary being fixed suitably to the circumstances of the case at any stage in the scale. The minimum of the grade that we have recommended is not so high as to rule out a young man who might be considered fit for appointment as a Professor by virtue of his brilliant work, and qualifications. The maximum of the grade on the other hand, is high enough, we hope, to attract persons of experience and proved worth.

23. Selection of Professors.

The Governing Body will advertise the posts of Professors and after the last date for receiving applications, will constitute a selection Committee for each branch of study as follows:-

(i) One member of the Governing Body to act as Chairman for all selection Committees for a period of three years.

(ii) The Principal of the College.

(iii), (iv), (v) and (vi) Four experts chosen on an all-India basis, two from the same branch of study and two from the same or an allied branch of the subject:

The experts of course will be different for the selection of Professors for the different departments, but the Chairman and the Principal of the College will be members of all the Committees.

24. In making their recommendations, the Selection Committee will have before them a statement regarding the nature of the work expected of the Professors and of the qualifications regarded as desirable in the persons to be chosen for the appointment. While we recognise the advantage to be derived by a person of the requisite capacity having spent a certain period abroad in higher study and research, we would not consider this to be a sine-qua-non for the appointment of a Professor in the College, as this might result in the exclusion of highly qualified candidates.

The Selection Committee will meet, consider the applications, call for interviews if necessary and submit a panel of names in order of merit, of one name if there is only one suitable applicant, or no name at all if there is no suitable candidate. The Selection Committee will also be free to suggest names of people suitable for the post even if they have not applied. The Governing Body will then appoint the Professor with the concurrence of the Government.

25. We shall consider later the details of the organization of teaching and research in the College. It will suffice here briefly to indicate that we propose the ultimate abolition of the existing posts of additional Professors and the creation of a number of independent departments, each having a Professor at its head with Assistant Professors, research fellows, and senior and junior research scholars to assist him and to carry on higher teaching and research in the department.

(P.T.O.)

26. Duties of the Professors.

(i) The Professor will be the head of the department of study in his subject.

(ii) He will actively engage in research work and also take upon himself a substantial share of the regular teaching work of the department, especially that of the highest grades.

(iii) He will allot the rest of the teaching work amongst the Assistant Professors, Fellows and research scholars.

(iv) He will direct research in the department.

(v) He will have powers to place orders for stores, equipment, etc., for his department upto the limit of the sanctioned yearly budget through the Principal.

(vi) He will be responsible for the successful conduct of the department and especially for the organisation of teaching and research.

(vii) He will co-operate with the heads of other departments effectively in the promotion of the above objects.

NOTE: The duties of the Professor should be specified in his contract of appointment.

VII Assistant Professors.

27. The qualifications for Assistant Professors should, in our opinion, be of the same general nature as those to be expected of Professors, except that in the majority of cases they would be younger men. But, none the less, as far as possible, the selection should be equally strict and made in the same formal manner, except that the Professor who is the head of that particular department should be one of the experts on the Selection Committee. In view of the high qualifications expected, we recommend the scale of pay of Rs 250-25-500.

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28. Duties of Assistant Professors:

The Assistant Professors will be expected to take part in the teaching work of the department and to engage themselves actively in research.

To ensure the smooth working of every department all Assistant Professors should be asked to sign a contract promising loyal co-operation in carrying out the work of the department as directed by the Professor.

VIII. Scholarships and Fellowships.

29. In order to encourage research of a high order, we recommend that a sufficient number of research scholarships and fellowships be endowed so that young men of talent can avail themselves of them and stay on in the College to do research work and at the same time take some part in teaching also. We feel the institution of these scholarships and fellowships to be vitally important to an institution of the kind we envisage, because these men after gaining experience in research and teaching will go out to staff other research institutions that are being started in many parts of the country or as Professors and Assistant Professors in other Colleges.

30. We recommend the institution of the following types of award.

(a) Junior scholarships at Rs.100 per mensem for a maximum period of two years.

(b) Senior scholarships at Rs.150/- per mensem for a maximum period of three years.

(c) Research fellowships at Rs.250/- per mensem for a maximum period of five years.

These should be made renewable every year.

31. Ordinarily, a student who has taken an Honours or a Master's degree, will be eligible for a junior scholarship.

one who has taken M.Litt., M.Sc.,or Ph.D., will be eligible for a senior scholarship and one who has taken Ph.D., or D.Sc., will be eligible for a research fellowship. These scholarships are intended to enable students of talent to prosecute research work under the direction of the Professor. In this connection, we recommend that the posts of Demonstrators and Tutors be abolished and that the work being done by them at present is distributed among the Research scholars and fellows.

32. Award of Scholarships and Fellowships.

The head of the department will receive applications for scholarships and fellowships and forward them to the Senatus with his remarks and recommendations.

The Senatus after consideration of the recommendations of the head of the department will in the case of the junior and senior scholarships award them and in respect of the research fellowships forward their recommendations to the Governing Body for final decision.

IX. The Organization of Teaching and Research.

33. At present, the College is organized into a number of departments, each having usually a Professor, an Additional Professor, Assistant Professors, Tutors and Demonstrators. This organization of teaching is directed mainly towards enabling the students to pass their examinations and take their degrees. Many of the subjects dealt with in these departments are of such vast proportions that it is not possible for any person, however eminent, to undertake effectively the organization of teaching or the supervision of research in the whole subject. One may mention, as an example, the case of Chemistry which to-day is divided into several branches such as Inorganic Chemistry, Organic Chemistry, Bio-Chemistry, and so forth. It becomes necessary in these circumstances, for the effective organisation of

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of teaching and research, to divide the subject into such distinct branches, and organise them as independent departments of study. The difficulty of the handling by one Professor of the whole subject is already recognized in the College by the appointment of the so-called Additional Professor. We feel that this arrangement is not conducive to the effective conduct of higher teaching and research. We accordinly propose that the academic structure of the College be re-organized on the basis of a number of distinct branches of study, each of which is headed by a Professor who is a specialist in it. We give below a list of the departments of study, which, we feel, should ultimately find a place in the work of the College. In drawing up this list, we have been guided principally by the consideration of the intrinsic importance of each subject.

(34) It would, of course, be necessary for the head of each department to have the assistance of an adequate staff. With regard to the strength of this staff, we feel that there should be some measure of uniformity. After careful consideration, we are of the opinion, that two Assistant Professors, one Research Fellow, one Senior Research Scholar and two junior research scholars would afford a reasonable measure of assistance to the Professor in teaching and research. As the College is to be developed into an institution for higher teaching and research, we feel that in future the number of lectures should be reduced, and that those that are delivered should be of a higher standard and more vitalising. This would demand the admission of more self-reliant students who would be able to benefit by such advanced teaching, and might involve a certain limitation of the number of students, especially in the Pass Courses. It is quite possible that in certain cases, as for instance, in the teaching of English, that the character and extent of the work would demand

X. The Implementation of the Scheme.

(37) It would clearly not be practicable to give immediate effect to the proposed re-organization of the College into 24 distinct departments of studies listed earlier in our report. The process would necessarily have to be spread over a period of years, and we would suggest that it should be carried out in three successive stages, respectively at the beginning of each academic year.

(38) After a preliminary survey of the problems involved in the re-organization, the Chairman of our Committee wrote to the Hon'ble the Minister for Education suggesting that funds be provided in the current year's budget for the creation of 8 new Professorships, as also for the provision of a sum of two lakhs for the cost of additional equipment. We understand that this has been done. We suggest that as soon as the Governing Body is set up, all the Chairs in the foregoing list dealing with the following subjects be advertised.

(a) Mathematics
(b) Physics
(c) Chemistry
(d) Botany
(e) Zoology
(f) Geology
(g) Economics

The advertisements should specify the branches of study comprised by the Chairs, and the special qualifications expected of the candidates. It should be open for the present members of the staff of the College to apply. On receipt of the applications, the Governing Body would proceed to constitute the Selection Committees in the manner mentioned earlier. The Governing Body would decide,

having regard to the qualifications of the candidates recommended by the Selection Committees, and the relative needs of the different branches of study, which of the Chairs may be filled up. They would then make the appointments with the concurrence of Government. A similar procedure would be followed well before the commencement of each succeeding academic year, the number of Chairs to be filled up each year depending on the availability of suitable candidates.

39. The appointment of Assistant Professors in each department recommended in the scheme should, in our opinion, be made only after the Professor of the department concerned has been appointed and taken charge and has had some time to take stock of the situation. These appointments would, therefore, have effect from the commencement of the College year following that in which the Professor concerned is appointed. It would be desirable that a similar procedure is followed also in the case of Research Fellows, as the selection of these would have to be made with considerable circumspection. We see, however, no objection to the award of Research Scholarships as soon as the Professor appointed is in a position to make recommendations and finds himself able to undertake their supervision.

40. It is possible that during the successive stages of the re-organization, a substantial proportion of the present higher staff of the College may find themselves selected for the positions in the re-organization scheme. Those who are not thus absorbed would, we earnestly hope be found positions elsewhere by Government. We see no objection to such of the members of the staff as are disposed to co-operate with the new Heads of the Departments being retained as supernumeraries until they can be provided for elsewhere by the Government.

41. We foresee that as our scheme is progressively implemented, numerous problems will arise requiring careful consideration by the Governing Body. The most urgent of them would be the provision of adequate facilities for the work of the newly appointed Professors. The College has for many years devoted itself almost exclusively to routine teaching and examination. As research work develops, much additional equipment will naturally become necessary. It was for this reason that the Chairman of the Committee requested the Hon'ble Minister to provide a sum of Rupees Two Lakhs in the budget for 1949-1950. The distribution of this sum amongst the different departments for the purchase of research equipment would be a matter for decision by the Governing Body, and as it would depend upon the particular Professorships actually filled during the first year, we do not think that any useful purpose would be served by our making detailed recommendations on the subject. It would be for the Governing Body to take the speediest possible action in the matter.

42. It is likely also that as the reorganisation proceeds, the accommodation provided by the existing laboratories would be found inadequate to house the various new activities proposed. It has been brought to our notice that even at present several of the existing departments are cramped for space. When the new departments contemplated by usare brought into existence, and also as the result of the division of the major subjects of study into distinct departments, the provisionof additional accommodation and even the building of new laboratories may become necessary. This again, is a matter which would require careful consideration and action by the Governing Body.

43. During our inspection of the College, it became evident to us that the facilities provided for library work leave much to be desired. There is no Science Library as such, the books and journals being spread out amongst several departmental libraries, the arrangement of which appeared to us distinctly unsatisfactory. Many of the books on subjects relating to the humanities are also similarly scattered over a number of departmental libraries. The main arts library and reading room of the College is badly lighted. As it would be difficult to organise higher teaching and research properly under such adverse conditions, the provision of a well-arranged library with reading rooms for the staff and students should, in our opinion be given a high priority.

44. Another matter of importance is the provision of residential accommodation for the Research fellows and Research Scholars contemplated in our scheme. We feel it to be essential that these workers are lodged near the College, so that they could carry on their work for the necessary number of hours every day. Amongst other needs of the reorganised College would be the provision of a Central Research Workshop where the needs of all the departments can be attended to. Such a workshop would also provide for the production of liquid air, the fabrication of blown glass apparatus and various other requirements of all the departments. It would also provide opportunities of learning the general techniques with which every research worker should be familiar, usefully supplementing the training in special techniques given in the individual departments. It would probably also be useful for the College to organise a Central Stores for the supply of such articles as are needed by all the Science departments.

(P.T.O.)

We are submitting a separate memorandum dealing with various matters arising out of the foregoing report, but which, we felt, need not find a place in our main recommendations.

(Sd.) C. V. RAMAN
" A. L. MUDALIAR
" B. B. DEY (see sep.note)
" M. O. PARTHASARATHY IYENGAR
" T. VIJAYARAGHAVAN
" C. PITCHAMUTHU
" B. NATARAJAN
" K. SRINIVASAN
" S. G. MANAVALA RAMANUJAM
" M. ABDUL HAQ
(Absent) A. RAMAMURTHI

PRESIDENCY COLLEGE,
MADRAS, 12 FEB, 1949.

I am very definitely of opinion that the three branches of Chemistry should be -

Organic Chemistry
Physical Chemistry
Inorganic Chemistry.

High polymer Chemistry as a very specialised branch, should not be included in an institution like the Presidency College the main object of which is the teaching of the fundamental sciences leading on to fundamental research.

For the same reasons, I would suggest that the subject of "Chemical Physics" be named "Atomic Physics."

Sd. B.B. Dey.
12-2-'49.

The Committee have carefully considered Dr. Day's remarks and are unable to agree with them for the following reasons:

(i) The designation of Chemical Physics is a well-recognized one which describes correctly a very large and actively growing branch of Physical science. The Committee, therefore, are convinced that in the interest of higher teaching and research, there should be a distinct department of Chemical Physics at the College and that the work of such a department would not be correctly described by the term 'Atomic Physics' suggested by Dr. Dey.

(ii) A separate department of Physical Chemistry is, in the opinion of the Committee, unnecessary, and would also be a duplication, in as much as the greater part of it would fall under Chemical Physics and the rest would be covered in the activities of the three departments of Chemistry listed in the report.

(iii) High Polymer Chemistry is at the present time an extremely active and growing branch of knowledge of fundamental importance and also of great interest in view of its application

in numerous industries. We feel that the Institution of a department of High Polymer Chemistry is necessary for the proper development of chemical studies at the Presidency College. It would give a strong fillip to fundamental research and also prepare the alumni of the College for participation in the development of numerous industries in India, viz., textiles, rayon, rubber, glass, wood-working and plastics in general.

Sd. C.V. Raman,
14-2-'49.
" A.L. Mudaliar
" M.O. Parthasarathy Iengar
" C. Pitchumuthu
" T. Vijayaraghavan
" K. Srinivasan
" S.G. Manavala Rananujan.

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Memoranda supplementing the main report.

(1) Establishment of a Contributory Provident Fund.

The Professors and Assistant Professors recruited by the Governing Body under the scheme of re-organisation proposed by us would form the regular staff of the Presidency College and would naturally therefore not be liable to transfer to positions elsewhere. For various reasons, it appears to us desirable that these appointments should be on a non-pensionable basis, but that they should have the benefit of a contributory Provident Fund scheme. When, however, the person chosen by the Governing Body for appointment as Professor or Assistant Professor is already in pensionable Government service - whether at the College itself or elsewhere - and desires to retain his claim to pension, the Governing Body should, we think, be permitted to make the appointment on a pensionable basis. In such a case, naturally, the person appointed would not be eligible for the benefits of the contributory provident fund schemes of the College.

(2) Leave Rules for Professors and Assistant Professors.

Under the existing arrangements, the Presidency College has a long academic vacation and there are also numerous holidays which cut into the available working time. We feel that the sustained effort necessary for significant achievements in research is not possible under such conditions. It would also be difficult for an Institution intended for higher study and research to make any real progress if the time and energy of the staff are frequently diverted to other activities, however praiseworthy or important they might be in themselves. For these reasons, the rules regarding vacation and leave of absence for the staff require modification. We recommend that:

(a) The College should be completely closed for the hot weather during the period from the 1st May to the 15th of June in each year.

(b) The College would also be closed on Sundays and on public holidays declared as such under the Negotiable Instruments Act.

(c) The College would be fully open on all other days, and all facilities should be available for those engaged in research or advanced studies.

(d) Professors and Assistant Professors may, in addition, be allowed one month's leave of absence on full pay during each year. This may be taken at any time subject to the exigencies of work and may be accumulated upto a maximum of 3 months.

(e) Casual leave up to a maximum of ten days in a year may also be granted.

(f) Absence on work of academic importance may be treated as duty leave, but all such cases should be reported to the Governing Body for scrutiny and approval.

(3) Regulation of Admissions to the College.

It is obvious that the efforts of teachers, however capable or eminent, would not result in raising the general level of the academic life of the College unless the alumni selected for admission into it are *prima facie* capable of benefiting from the advanced type of instruction proposed to be offered to them. Further, if students who are not of the requisite calibre are admitted in large numbers to the College, the whole scheme of re-organisation proposed by us would fail to achieve the aims in view. The regulation of the admission of new students to the College, both in respect of their numbers and of their quality, is therefore a matter which requires attention and should come under periodic review by the Syndicate of the College. Since the responsibility for the successful organisation of teaching and research lies, in the first instance,

on the heads of departments concerned, it follows that they should have a voice in determining the selection of the students for all the higher courses of study at the College, namely those for the Honours and Master's degrees, and that in respect of the selection of students for research work, the initiative should come from the Professors who would guide and supervise such work. So far as admission to the Pass courses is concerned, however, practical considerations indicate that the selection should be in the hands of the Principal of the College.

(4) A. Building Programme for the College.

As indicated in our report, we foresee that the re-organisation proposed by us will necessitate an increase in the accommodation available for the activities of the College. Some of the more urgent needs in this direction have already been mentioned by us. It seems to us important that such expansion is effected on a systematic and carefully thought-out plan which takes into account both the immediate requirements and those that are likely to arise in the course of years. In this connection, we note that there is a fairly large area of land available to the west of the Natural Sciences Block of the College which has not been built upon, except for the house formerly occupied as a residence by the Principal of the College. We would recommend that a site plan for the whole of this area may be drawn up in which the location of the buildings likely to be needed are indicated, so that development may proceed in an orderly fashion. High priority should, in our opinion, be given to the construction of a properly designed library for the whole College, as this is a vital necessity for an institution devoted to higher studies and research. A suitable location for it would be in the space between the older and newer parts of the College, but a little to the rear, so as not to interfere with the admission of light and air into the existing laboratories. There should be ample provision on the ground-floor of the building for the stacks of books and bound volumes of journals, while on the first floor, the reading

rooms would be located and the current reviews and scientific journals and the latest books would be displayed to advantage. Possibly, even a second-floor might be provided which could be used as common rooms for extra curricular activities.

(5) Co-operation with the University and with other Colleges.

The Presidency College is a constituent College of the Madras University, and the level of the activities carried on by it cannot remain uninfluenced by the general level of the activities elsewhere in the Universities and the other Colleges in Madras. It follows that the Presidency College should give its heartiest co-operation and support to every movement which promises to raise the standards of academic work in the University. Amongst these, we would mention particularly, the arrangements being made to undertake systematic teaching leading up to the M.A. and M.Sc. degrees on the basis of co-operation between the staff of the University and of its constituent Colleges in the Madras area. The Presidency College should, we feel, give the warmest support to this move, since it is calculated to place University teaching on the highest level possible with the existing personnel. We would suggest also that in appropriate cases, the Governing Body of the Presidency College might find it of advantage to secure the services of teachers of other Colleges in the Madras area, on a part-time salaried basis, for participation in higher teaching and research in its own departments of study. This would naturally require the consent of the management of those Colleges, but we are confident that such consent would be forthcoming, since the results would be of benefit to all concerned.

The Presidency College,
Madras, 14th February 1949.

Sd. C.V. Raman
" A.L. Mudaliar
" M.O. Parthasarathy Iyengar
" C. Pitchumuthu
" T. Vijayaraghavan
" K. Srinivasan
" S.G. Manavala Ramanujan

A Statement on the reorganisation scheme of Presidency College, Madras.

(By Dr. B.B. Dey.)

The recommendations embodied in this statement fall into two categories, viz., those relating to the Science Departments in general and those relating to the Department of Chemistry in particular.

A. General Recommendations.

(a) Scope of the teaching & research. The Committee is concerned with the practical suggestions for the development of the College as an institution for advanced teaching and research. It is necessary to define clearly the scope of these two aspects of its work. It is desirable to retain teaching at the College for the B.Sc. and Honours degrees of the University, since it is highly beneficial for the research students to undertake some teaching work as well and also since the standard attained by the graduates themselves is bound to improve by close association with those engaged in research. But, the object with which the students are trained in science courses must undergo a change from the one that is existing at present, viz., just the obtaining of a degree. At least a major section--if not the whole number--of the science graduates must be absorbed in scientific professions, such as research, teaching or industry. It seems to be a criminal waste of the nation's limited resources--and talents--to train students in the various branches of science and to divert them into channels in which such advanced and specialized training is not utilised at all. In countries of the West, a science graduate almost invariably takes to some scientific profession.. But since in India, the University degree happens to be the minimum qualification required even for professions where such a qualification is unnecessary, students are interested in just having a degree, it being of no consequence in what subject it is. This matter of a new orientation to the teaching of science subjects raises matters which are outside the scope of this Committee, but the problems involved are so inter-connected that it is not possible to discuss a single issue in isolation and some general comments may not be out of place.

The proportion of students coming to the University to those who attain the high school standard is rather high in India, in comparison with even some of the most advanced countries in the West. This is as a result of the lack of sufficient development of trade and industries in the country and of technical institutions for the purpose of training the personnel required for the various trades. With the growth of commerce and industries and the establishment of more technical institutions for satisfying the need for trained men that will arise, the pressure on the Universities and institutions concerned with advanced teaching will be diminished resulting in their being able to devote greater attention to research and advancement of knowledge than they are ablexto do at present. It may be that the ultimate solution of the problem may lie in making the school leaving certificate--suitably amended by raising the standard and the school leaving age--as sufficient qualification for professions which do not require an advanced training and by giving suitable training after this stage in trade schools, technical colleges, commercial institutes, etc. for the various professions cuh as the trades, the lower administrative services, etc. Thus it can be ensured that students who enter an advanced institution are those who are interested in the subject in itself and who are reasonably sure to adopt a scientific profession. Such is the practice that is prevalent in several institutions in the West.

One direct outcome of the lack of an objective for his learning on the part of the student is the gradual deterioration of the standards of the Universities and their failure to catch up with the rapid strides made by modern science. Here again several factors are involved. The University may be suffering from the lack of a high standard obtaining in the high school stage, since after all it is this material on which the University has to build; or again, the University cannot escape from the effects of the period of transition in which vital decisions regarding several questions such as the media of instruction, nature of the education to be imparted etc. are being made. But, even after making due allowance for the above causes,

a large factor contributing to the declining levels attained by our graduates is the lack of real devotion to the subject, which at present occupies only a very small part of their lives. The remedy is obvious and that is to givex a new orientation to the teaching of science in advanced institutions, viz., to train personnel for scientific professions, such as research, teaching or industry. Institutions which combine teaching and research must absorb such of their students--as well as those suitably qualified from other institutions--who have special talents for academic work into the research department and after experience in research into its staff; while those who show aptitudes for the technological aspects of the sciences must be directed to industries after further technological training, if found necessary. In this connection reference may be made to the general custom obtaining in U.K. and U.S.A., where industrial establishments recruit the personnel required by them through the professors in the Universities and research laboratories, who often act as consultants to these industries.

Turning to the research side, the major part of the research activities must be on the fundamental side through the applied aspect of science can never really be dissociated from the so-called pure side. But various bodies sponsored both by the state or by private enterprise are coming forward to devote attention to problems of applied science and it is desirable that the Universities and institutions such as Presidency College devote their energies to problems of a fundamental character. Of course, this broad principle must not stand in the way of the College undertaking to investigate schemes of research which are of national importance, though of an applied character. The aim in all cases must be as in the case of teaching, to turn out work of a high order. This can be ensured only by sustained effort on the part of the students and the research guide over a long period. Some factors which will ensure this as well as some organisational details are dealt with later.

Recruitment of students: If the above formulation of the scope of the work of the College be accepted, then the College must re-organise its undergraduate teaching in such a manner that its graduates, including the pass-course students will be qualified to take to advanced research without further training which is found to be necessary at present. The curricula of the science subjects will have to be greatly elevated from their present level. In this respect it is necessary to treat Presidency College on a different footing from other colleges in that it should be enabled to formulate the courses to suit its own particular and special requirements with a reasonable amount of freedom from the University regulations. Since the level of teaching at the College has to be much higher than the present degree level of the University, the latter may be induced to confer its degree on those who have passed the examination of the College--a parallel being the London University conferring its B.Sc. degree on the Associates of the Royla College of Science, London. But if the University is not willing to adopt this course, the students of the Collegecan, of course, take the degree examinations with confidence. In order to attain the high standard required, it is essential to recruit the proper type of students for the degree courses. The need for merit being the criterion of admission cannot be over-emphasised. If it is understood very clearly that the aim of the College is to train students mainly for advanced research and teaching, the plea for adequate representation of the various communities will lose much of its weight since it arises out of the existing disparity of the representation of the different communities in the administrative services, the entrance to which is provided by a degree in the College. Even at the time of admission it should be made clear to the entrants that they were undertaking a responsible job which may not bring them high material rewards as in some other channels. In this way, only those who are keenly interested in the subject and have shown in their pre-collegiate career an aptitude for the pursuit of science should be admitted to the College. It need not be said that the real solution of the liquidation of the disparity in the levels of education of the

different communities lies elsewhere, viz., in the provision of equal opportunities for all the people of the country to have basic and elementary training and not in stifling the growth of knowledge at an advanced stage.

Admissions to the research department must be restricted to those who have had a good record in the Hons. and post-graduate courses and those who have had a brilliant record in the pass course of the Presidency College, or in affiliated Colleges with sufficient equipment. It is assumed, of course, that in all these cases, the director of research has satisfied himself that the student has obtained sufficient proficiency in theory and practical work to take to research.

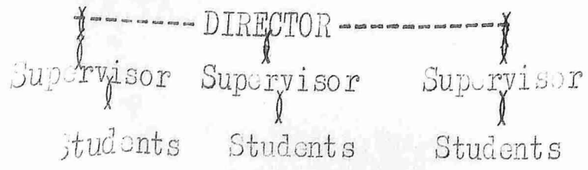
Strength: In recent years, when there has been an enormous pressure for admission to the existing Colleges, very scant regard is being paid to the strength that a College or a Laboratory can accommodate without sacrificing the efficiency of the institution. It is worth remembering that the laboratories of the College were designed to coach a limited number of students in the Hons. and pass courses and this number cannot be exceeded without very serious deterioration in efficiency. It is often sought to overcome the pressure on laboratories and lecture rooms by working the so-called "Shift System" which has become more or less a permanent feature of some institutions. This system results in the students being able to work only a very limited number of hours in the laboratories, the lecture room being always engaged, leaving no time for arranging lecture demonstrations, and the teaching staff having to work with scarcely any leisure. Lecture demonstrations are becoming more and more difficult to arrange, if not altogether impossible and the lecturers find hardly any time at all to prepare their lectures or to engage in research work. The real solution is to expand the working space of the science departments, but in the absence of such new constructions, the number of admissions to the College in the different departments must strictly be limited to that which is con-

consistent with the space and staff available.

Staff: The College is staffed inadequately even to carry out its present functions and if advanced research is to form a significant part of the work of the College, the science staff must be greatly increased in number. All the members of the staff must engage themselves in research in addition to teaching and in order that this can be done efficiently each member of the staff must have only a very limited number of lectures and hours of practical supervision per week. The research students can be asked to undertake demonstration work by turns during the practical work of the undergraduate students. Thus the staff who have to do full time demonstration work can be substantially reduced and the research students will also gain some valuable experience in the same process.

For vigorous and flourishing schools of research being established at the College, it is essential that there must be a continuity of service of the staff at the College and consequently the present practice of transferring staff from and to Presidency College must be discontinued. The recruitment of staff to the College must be on the basis of research experience, preferably in the fields in which the different departments are specializing, and not on the basis of seniority etc. Any reorganisation scheme must begin with the appointment of duly qualified Directors of research to the different departments where such Directors are not available at present. The other members of the present staff must be given sufficient facilities to engage themselves in research and gain the minimum of research qualifications within three years, or if they so desire, their services may be utilised by the Government elsewhere. All future appointments to the College should be made only on the basis of mature research experience.

Organisation of Research: The following pattern of organisation of research is recommended to be adopted in the various departments:



The number of supervisors under the Professor (Director) and the number of students under one Supervisor may vary according to the capacity of the persons concerned, the nature of the work undertaken and the facilities available in the Laboratories. The Supervisor is in constant touch with his workers and is normally free from administrative responsibilities. He keeps abreast of the latest advances through literature study--the research worker may not always find the time needed for this purpose--and serves as a day-to-day guide for the student. The Director follows the work of the groups through periodic visits, periodic reports--these being obligatory--and through periodic "conferences" with the Supervisor and the men engaged in allied pieces of work. These must be in addition to the colloquia and the discussion meetings in which all the members of the department take part. No excuse is offered for such systematisation which may be dubbed, ungenerously, as regimentation. But the results obtained in the field of research during the war years in the West has amply proved the importance of planned and co-ordinated research activity even in the realms of pure science. This system ensures and encourages 'team work' and the achievements of the 'penicillin' and the 'atomic' research teams in U.K. and America have been the results of such planned and co-ordinate activity. Such an intensive work is necessary especially at this stage when we have yet to build up flourishing schools of research.

In addition, the directors must have a Research Assistant who will not be having--though not necessarily so--any lecturing work, and who will assist the Professor in lecture demonstrations and provide expert practical assistance to the other research men in the laboratories. He must obviously be an experienced research worker, preferably a senior person from among the Research workers of the College. He should ultimately find himself asa Supervisor in charge of a number of students and finally as a Professor. Such a system of gaining experience while assisting a Professor has been a characteristic

of the German Universities and can be adopted in the College with profit.

Hours of work: The normal working hours of the College must be from 10 to 5. The lectures for the undergraduates must be arranged between 10 and 12 each day, leaving the entire afternoon free for practical work. They may be allowed to arrange their lunch hour during any time that is most convenient to them, preferably between 1 and 2. Such an uninterrupted period is essential for acquiring a high degree of skill in practical work.

Though the normal working hours for research students should also be from 10 to 5, facilities must be provided for them to work outside these hours including the nights. In most of the Universities in U.K. research workers have access to the laboratories and the consulting section of the library during all hours of the day and night. If this cannot be had, due to considerations of the safety of the building etc., at least a room with independent service connections must be set apart for night work. This method is in vogue in the Swiss Laboratories, which do not work, as a rule, after 6 P.M. The work in these laboratories, however, starts at 8 A.M.

Financial Aids to Research personnel:

It is essential to attract really capable personnel to take to research, both as guides as well as students. The lack of adequate financial aid to research workers in the past has been responsible for driving talented young people away from the field of scientific research and an academic career.

In recent times, the importance of scientific research is being realised to an ever growing measure, by the State and by private enterprise, in the West and young people have been induced to take to research as a career. It can be said as a rule that no student need engage himself in research in U.K. today without adequate financial support either from the State or from private agencies. In Presidency College till very recently, only a few University fellowships were available for research workers and even then, the sum paid was totally inadequate. Now, there are a few more College fellowships available - one per Department - but in spite of these, the total number of scholarships and their value are too low to attract keen people in increasing numbers to research. There is a limit to the extent of sacrifice of material comforts that persons can be expected to make for the sake of research, even assuming that they are very dearly devoted to its pursuit. The salary of the staff and the value of the scholarships and their number must be raised to a satisfactory level so that both students and the guides will choose with content to stay and work at the College instead of being always on the look out for more lucrative jobs. Only thus can be ensured a continuity of research work which is essential for work of a high level.

Field of work. In the initial stages of the development of research in the College, it isneither possible, nor is it desirable that research work should be undertaken on various problems, covering a very wide field in the different departments. It is better to concentrate the research in rather limited fields, depending upon the experience and the aptitudes of the Directors and Supervisors, thereby establishing efficient schools of research in particular fields. Most of the leading research laboratories in the world will be found to be noted for a few particular fields in which they have distinguished themselves and on which have concentrated their attention rather than for the extensiveness of the field of their work. This has also a practical consequence in the fact that, if considerations of the financial position of the province prevent expenditure on a large scale for the purchase of equipment for new branches of study, intensive research can be started and carried on in branches for which resources are available at the College

at present.

In this connection, attention may be drawn to the existence of well-equipped research laboratories of the University in Botany, Zoology and Biochemistry and to the desirability of a greater co-ordination between the respective departments of the College and the University Laboratories. The limited resources of the College can be put to maximum benefits if the allocation of funds for research to these departments is restricted to some extent, depending upon the facilities available at the above-mentioned laboratories and greater allocations are made available to the departments of Physics and Chemistry.

Equipment, Library, maintenance and repairs, etc. The Presidency College Laboratories are much better equipped than those of the other constituent and affiliated colleges of the University and this was even more true a few years ago. But, it has not been possible during the lastfew years for obvious reasons, to add to the equipment. This is rather unfortunate, since many great developments have taken place in the various branches of science during the interval and consequently our laboratories are lacking in the modern types of equipment. It is necessary therefore that the laboratories must be equipped adequately at a fairly high initial cost. Heads of all departments must be asked to draw detailed estimates of the essential equipments of their respective departments and the Government must satisfy these needs to the maximum possible extent. As suggested earlier, the expenses under this head may be minimised, if, for the time being, research is undertaken in limited fields, making as much use as possible of the equipment available at the moment.

The Library facilities are not adequate at present. The grant for the purchase of books has to be substantially larger and the number of journals bought by each department has also to be increased. It may be said that the University Library should be able to meet the demands of the students of Presidency College. Though this is true to a limited extent, not only does the University Library also suffer from lack of adequate number of books in advanced sciences, but the general experience of research students has been that on account of the distance and the non-availability of particular books and journals at times of need, etc., it is

is extremely difficult to make a comprehensive literature study. Also, the undergraduate students must be encouraged to make a greater use of the library than they are doing at present. Only the library habit can check the growing tendency among the undergraduates to confine their study to the few prescribed text books and lecture notes which are enough to give them a pass in the examination. By appointing a full time librarian in each department and by keeping the book shelves open for consultation during the working hours and by personal advice from the staff, the students must be encouraged to rely on work on their own initiative through the libraries.

The maintenance of the laboratories in good condition is an extremely important aspect and certain recommendations in this direction may not be out of place. The present system in which the repairs to the service systems of the laboratories have to wait the pleasure of the P.W.D. for their execution often results in the virtual immobilisation of the laboratory space for long intervals. It would be better if a maintenance and repair staff is provided for the College, or if the College is authorised to engage its own labour when the necessity arises thus getting rid of much of the administrative formalities existing at present. The Directors must see that the laboratories under their charge are kept clean and in a good condition.

The freedom from administrative restriction and delays apply even more forcibly in the case of procurement of apparatus and stores. When once the budget allocation is made to the various departments, the Directors must be reasonably free to make use of the grant in the best possible manner. It is not suggested that financial audits and controls should be done away with. But the delays, which such checks and sanctions involve, must be greatly minimised, the technical aspect of the various appropriations--as distinct from the financial side--being left almost entirely to the discretion and judgment of the heads of departments concerned. In addition, it is desirable to make a grant of a sum--to the tune of about Rs.2,000/- a year--to be placed at the disposal of the heads of departments, to be utilised in meeting special

expenditure connected with his own researches.

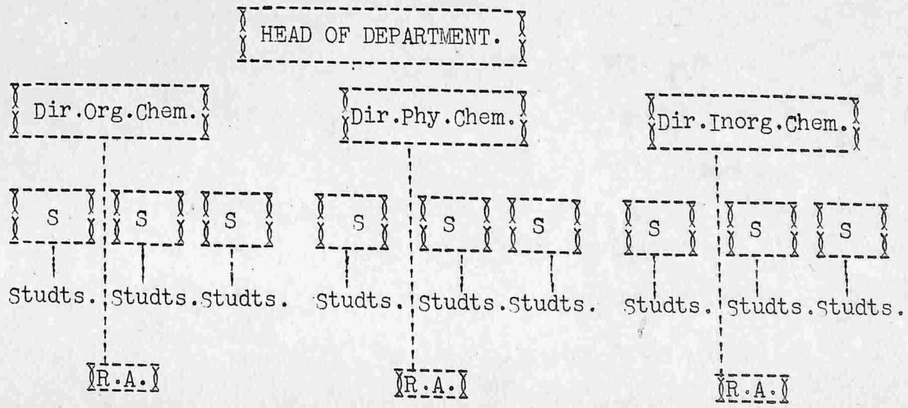
The heads of departments will have a reasonable amount of administrative duties and it is desirable to have a personal secretary to assist him in his administrative functions.

B. CHEMISTRY DEPARTMENT.

If the standard of the graduates in Chemistry in general has failed to cope with the recent advances, this decline is more pronounced in the fields of inorganic and physical chemistry. To cite an instance, among the graduates of the Presidency College, who have taken to scientific research as their career during the last twenty years or more, the vast majority has taken to organic research, hardly a few to the physical and almost none to the inorganic field. This is true also of the large number of graduates who have been sent abroad during the past three years under the technical training scheme of the Government. Again, it has been the experience of our graduates, especially the Honours students, that their proficiency in Organic chemistry, in theory as well as practical work, compares very favourably with their parallels in other countries, whereas their proficiency in physical and inorganic branches is comparatively very poor. This is hardly surprising since the college enjoys a tradition of research in organic chemistry, which is reflected in greater interest being evinced in it by both students and staff alike. It is time to remedy such a state of affairs since physical chemistry is playing an ever increasing role in the development of chemistry as a whole, not excluding the branch of organic chemistry. The growing school of physical organic chemists is contributing a great deal to the development of not only the theoretical side of organic chemistry, but of the classical synthetic sides as well. The electronic theory and its offshoot, the quantum mechanical theory of reasonance, are providing the explanation of phenomena which were not understood clearly so far. Nor can we afford to continue to pay scant attention to the enormous field covered by inorganic chemistry. The striking developments made during the war years in the chemistry of fluorine, to cite only one outstanding example, must bring home to all of us the unlimited scope for high class work in this field. The present handicap of our graduates, viz., the

the lack of an adequate grounding in these branches must be removed and this can be done by instilling into them a greater interest in these subjects by developing in the College flourishing schools of research in these branches.

It is therefore essential to have three Directors of research, one for each of the branches. One of the directors will be the Professor and Head of the Department and the other two, Additional Professors. Each of the Professors should have three Supervisors under him. (This number can be increased when the necessity arises and the administrative ranking and scales of pay need not be discussed in detail here). Each Supervisor can be in charge of four students normally, though the number could be increased to a maximum of eight when greater facilities such as more working space are available. As explained under general recommendations, each Professor should have a Research Assistant. Thus the research organisation of the Chemistry Department will have a pattern similar to the following:



S = Supervisor

R. A.= Research Assistant

(One for each Professor and will act as practical expert to all the students under his Professor).

By appointment of suitable personnel even at the outset, or by training in the department itself, a physical organic chemistry section can be developed in the College and this can act as a "service" department to both the branches. Physical measurements, such as the

absorption spectra, can be undertaken by this section. One of the supervisors may be shared between the physical and organic divisions as shown. Similarly mutual sharing of resources and study of common problems can be had between the other sections as well. Thus, one of the supervisors of the Organic Chemistry department may have special interest in the biological side and he can co-ordinate his work with that carried out in the University Laboratories; electrolytic work can be carried out by cooperation of the Physical and Inorganic sections or Organic sections as the situation demands.

While on the subject of research organisation, reference must be made to the desirability of having an important service department that is becoming an adjuct to every chemical research establishment in the West, viz., an advanced analytical department. Micro-analysis has become such an expert and skilled work now-a-days that it has become the usual practice in research laboratories in the West to assign this job to an experienced analytical laboratory, though the research students are required to have acquired the fundamental principles of analytical Chemistry in their undergraduate career. Such a procedure not only saves the time of the individual research worker but also keeps the consumption of chemicals, the breakage of costly equipement, etc. to a minimum, while at the same time increasing the accuracy of the results.

Turning to the teaching side, the curricula of the degree courses have to be altered so as to lay the proper emphasis on all the three branches of Chemistry. Since a fundamental mathematical basis is essential for the understanding of Physical Chemistry, especially atomics and thermodynamics, admission to the Honours Classes at any rate must be limited to those who have had Mathematics as one of their subjects for the Intermediate Examination. This must be followed by a further course in Calculus at least up to the standard of the B.Sc. subsidiary level. With this grounding in Mathematics, Chemistry Honours students must have classes in common with Physics Honours students in the field of Atmomics so that the

former can attain the same standard as is expected of the latter. Also, the lectures and practical work in Physical Chemistry and Inorganic Chemistry must be arranged in such a manner that the mathematical and quantitative aspects of the subjects are not replaced by a qualitative treatment.

The proficiency in a language (English or Tamil preliminary examinations) may be dispensed with and substituted in the case of both B.Sc. and Honours by a translation test in French or German. This is on the assumption that the medium of instruction in the College will continue to be English for the next many years and that proficiency in English would have been attained by the students at the time of their admission to the undergraduate course. If, however, the medium of instruction is changed to the provincial languages this test may be replaced by a translation test of English and French or English and German since an access to the bulk of world's research can be had through the English language.

Recommendations involving details of the organisation of the department are not possible at the present stage when the decisions regarding the strength of students for research and for degree classes have not been made since given the existing space, these numbers are interdependent. To give an example, the minimum number of staff can be arrived at on the basis of the teaching requirements of the Honours and Pass Courses (Main and Subsidiary) and has been already recommended to be 12, three of whom are the Directors of research and the others supervisors, with the administrative designation of Assistant Professors. But the laboratory space available for the degree classes will be greatly affected by the number of students that are assigned to each supervisor, or in other words, to each of the branches. In the initial stages, it is advisable to start with a small number of students and it is recommended that four students must be taken for research in each of the main branches. Each of them must be awarded a fellowship of at least Rs.150/- a month.

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One cannot also discuss very fully the details of internal organisation of the department and these are best left to the head of the department, but the following proposals are made only very tentatively. The intermediate laboratories can be used for the use of subsidiary students and of Inorganic research workers. B.Sc. laboratories should be used solely by the main students, 3 full days by senior students and 2 full days by the junior students. The present allocation of laboratories for the Honours students may be continued but it is essential to bring down the number of students to a reasonable level. The large number admitted in recent years to the Honours classes has resulted in an unmanageable pressure on the comparatively small laboratory space in the advanced organic and physical chemistry laboratories and these laboratories have had to resort to the shift system. In both these laboratories there is hardly any room left for research workers, who have naturally to work in the same laboratories all round the year. Provision for 4 research workers in each of these laboratories must be made and the number of Honours students must be limited to a figure which is consistent with the rest of the space in these laboratories. The rest of working space in the department, viz., the Professors' Laboratories and the present C.S.I.R. rooms must be kept in reserve for future expansion of research activities.

Summary of the recommendations:

General.

(1) (1) The main objective of the teaching department of the College should be to train students to take up a scientific profession, viz., research, teaching or industry. The bulk of the research work should be on the fundamental side. The standard attained in both the directions should be very much higher than at present.

(2) Recruitment of studentsshould be on the basis of merit only, at least as far as the Honours clases and research department are concerned.

(3) Strength of thestudents should be limited to a number consistent with the laboratory space available.

(4) All the members of the staff should engage themselves in Research. The number of members of the staff should be largely increased so that each may have enough time left to do research outside t his teaching hours. The recruitment of the staff should be on the basis of a distinguished research career.

(5) It is recommended that research be better organised than at present by encouraging team work, each team being in charge of a supervisor and several supervisors being under one director. Periodic reports, conferences, colloguia and discussion groups should be organised.

(6) The pay of the staff should be at a level, high enough to attract able men. The number and the amount of research scholarships available in each department should be increased. At least two scholarships of Rs. 100/- p.m. should be available in each department.

(7) In the initial stages, it is better if the college specialises in limited fields of work instead of attempting to cover extensive fields.

(8) The equipment, library facilities and the maintenance services of the various departments should be improved at a high initial cost, if necessary. A full time librarian for each department is desirable in order to keep the shelves open during working hours enabling the undergraduates to make greater use of the library.

(9) Each professor should have a research assistant to help him in lecture demonstrations and in his personal researches, and also to serve as expert adviser on practical technique to all the research men under him. He should also have a secretary to assist him in his administrative functions and a lump grant of Rs.2,000/- a year to meet special expenditure for chemicals, etc., on his own researches.

(10) The hours of work should be from 2 to 5, the lectures occupying the first two hours of the day, leaving the rest of the time for uninterrupted work in the laboratories. Students may adjust theirlunch interval to suit their own conveniences.

CHEMISTRY DEPARTMENT.

1) Greater attention should be paid to teaching and research in physical and inorganic chemistry. It is desirable that only I Group students are admitted to the Hons. classes. They should be given coaching in mathematics upto the level of the B.Sc. subsidiary students and they should have common classes with Physics Hons. students in the field of atomics.

2) There should be two additional professors, one for each of the two branches other than that of the head of the department. These, with the head of the department, should be the directors of research in their respective branches. There should be three assistant professors and one research assistant under each of these directors. All the members

of the staff should engage themselves in research and their recruitment should be on the basis of research, as well as teaching experience. The present members of the staff should be asked to acquire the minimum research qualifications within a period of, say three years; otherwise their services may be utilised by the Government elsewhere. To begin with, 4 research students may be admitted in each of the three branches. Research students may be asked to do part-time demonstration work. The scales of pay may be fixed as follows:

Professor and Head of Dept.	Rs.600-50/2-700-75/2-1000.
Additional Professor.	Rs.350-50/2-700.
Assistant Professor.	Rs.200-20-400
Demonstrator	Rs.100-10-200
Research Assistant	Rs.150-10-250
Research Scholars	Rs.100/-

Higher initial salaries on the above scales should be given to well qualified persons.

3) The number of the Hons. and pass students must be limited after making due allowances for the above number of research workers.

4) By appointment of suitable personnel or by training in the department, a good physical organic chemistry section and a micro-analytical section must be developed. These two sections may serve as "service organizations" for the whole of the department.

5) Library facilities should be improved. More reference books, such as Beilstein, for example must be made available.

6) The following tentative allocations are made:

The Intermediate laboratory to be used by the subsidiary students and research workers in inorganic chemistry.

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The B.Sc. laboratory to be used by B.Sc. Main students only, 3 full days by senior students and 2 (or 3) full days by junior students.

Provision for 4 organic research workers in advanced organic laboratory and 4 physical chemistry workers in the general physical chemistry laboratory should be made. These arrangements will leave space enough for a maximum of twelve students (including post-graduates) in the Final Honours Class. It is highly inadvisable to exceed this number without further extension of the building.

The C.S.I.R. laboratories and the Professors' laboratories should be reserved for the expansion of research activities in the future.

7) A Committee of eminent scientists should be appointed at the end of each five year period to review the work conducted in the various departments of the College, and on the basis of their recommendations, the Government may take the necessary steps for changes in staff and in lines of work, etc.

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Note submitted by Dr.B.B.Dey to the Committee.

I wish to draw the attention of the Committee to my note to the Chairman embodying some ideas on the re-organisation of the College, which I hope has been circulated to the members.

It is extremely desirable that at the beginning we decide upon the broad principles of re-organisation affecting

(i) the administrative organisation,
(ii) the academic organisation,
(iii) strength of the College and modes of admission,
(iv) expansion of the equipment, and
(v) the level of the teaching to be undertaken in various departments.

We may postpone with advantage the decision on details such as the internal organisation of the various branches, rules regarding the leave, pay, etc. of the staff to a later stage. In all our deliberations, we should always have in view the objective which is dear to us, viz., to convert the College into a premier Research Institution in the country and everything that we recommend should be directed towards the achievement of this objective.

The decision to appoint a Governing Body, independent of the Education Department, to administer the College is to be welcomed, and for this to be effective, it is essential that it should be a statutory body, with its functions fully defined. The Chairman of the body may preferably be nominated by the Government instead of the Vice-Chancellor being the Chairman ex-officio. The Governing Body should formulate the broad principles for the administration of the College and its decisions on the academic life of the College must be on the recommendations of the Senatus consisting e as it does. of the heads of the various departments.

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The appointment of a Secretary to be in charge of the routine administrative work is to be welcomed, and the Principal should be concerned more with the academic life of the College. In this connection, it may be urged that we should not continue in the future to commit a mistake of the past, viz., the head of a premier scientific institution not turning out any academic work by himself as has been the case in general with the Principals of the Presidency College in the past. Having appointed a person with a distinguished academic and research career as the Principal, it is to be expected that he should be associated with his branch of study. In research, institutions specialising in particular branches, such as Technology, Bio-Chemistry, etc. this is assured by setting apart a special laboratory as the "Director's Laboratory". But, since the Principal may belong to any of the various branches, the above method is not feasible in the College and therefore it is recommended that the Principal should also be the head of his respective branch of study.

On the basis of my note already submitted and on the discussions we have had so far, I wish to make the following recommendations which are applicable directly to the Chemistry Departments and with suitable modifications to the other departments as well.

(1) The admissions to the pass course should be made by the Principal, as done hitherto, the maximum number being limited to 50 in each class.

(2) The admissions to the Honours classes and M.Sc. course and the selection of research students and fellows should be made by the Senatus as a whole on the basis of recommendations of the Head of the Department. The strength of the Honours classes must be limited to 9 in each year,

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(37)

M.Sc's to six and of the strength of research personnel to 15.

(3) Three Research students should be admitted in each year so that at the end of three years from now, there will be 9 research students.

(4) One Research Fellow should be admitted each year to work for a maximum of five years, so that at the end of five years there will be 5 Research Fellows. In order to facilitate the work of the department, having regard to the decision that Research Fellows should also participate in the teaching work of the College, two or more Research Fellows may be appointed straightaway to start with.

(5) Each of the branches of Chemistry -- Inorganic, Organic and Physical -- should have a Professor and an Assistant Professor. All members of the staff must engage themselves in Research and to facilitate this, the lecturing work of each member of the staff should be limited to a maximum of four hours a week. (The scales of pay suggested for Assistant Professors and Research Fellows are:

Assistant Professor : Rs. 300-25-500;
Research Fellow: Rs. 250-20-350.

(6) Since in the immediate future, the pressure of administrative work in this branch (Chemistry) is not likely to be very heavy and since the stores and other services of the laboratories are not going to be divided into sub-sections it is recommended that one of the three Professors should constitute the head of the whole department of chemistry. He should be provided with a Stenographer to assist him in his administrative functions.

(7) The Professors should be allowed a reasonable amount, say Rs. 2,000/- a year as Research grant for meeting

special expenditure for chemicals etc., on their own researches.

(8) The appointment of specially trained technicians is to be welcomed. The services of a glass blower and a micro-analyst are essential for the chemistry department.

(9) Laboratory equipment and library facilities must be expanded at a high initial cost.

(10) Provision should be made for the study of problems which show promise of industrial exploitation on a semi-commercial scale. A portion of the laboratory in each branch of study should be set apart for this purpose.

(11) It is essential that hostel accommodation is provided for the research students, such of the staff as are willing to stay in a hostel, and if possible, for the final year Honours students. For this purpose, a three-storeyed building, having two parallel rows of rooms may be erected in the spacious grounds near the Principal's quarters.

Edn. (5)

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Sub: Colleges. Presidency College, Madras. Recommendations of the Reorganisation Committee.

14098A

C.No. 127451/49 Ord. on 6-5-50.

The notes at @/7-10 may be perused. No final decisions have yet been taken on the Reorganisation Committee's recommendations. The connected file is with H.M.(E & L). This may be a case A decision in which case may be awaited ~~to 1.8.50~~. This may be filed with the papers at @. after noting a call again on 1.8.50.

Call noted 6/6-6-50.

6/3.6.50.

Rx 3.6.50.

M 5/6/50