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The Indian Institute of Science—I.

WE have read the report of the Second Quinquennial Reviewing Committee on the working of the Indian Institute of Science, and we congratulate the members on the remarkable celerity with which they have accomplished their task. We agree with the statement that the circumstances, under which the Committee assembled for commencing their labours, were not propitious, and the atmosphere of the Institute was impregnated with passion and prejudice arising from a clash of ideals. It is almost superhuman to escape being influenced by the prevailing public feeling, and we consider that the ardent observations expressed by the Committee in certain sections of the report can be traced to such influence.

It will be remembered that the practice of appointing periodical committees for reviewing the work of the Institute owes its origin to the recommendation of the Pope Committee which set forth this purpose in the following terms:

"The progress of a young institution of a character entirely new to India calls for the continual interest of those responsible for its development, not necessarily for purposes of criticism, but rather in order to determine in what ways its usefulness to the community may be extended."

We have now before us the reports of the three Committees, which after a careful and critical examination of the original intention of the Founder have provided us with comprehensive criticisms of the working of the Institute and with equally comprehensive recommendations for its improvement. The Committees differ regarding the interpretation of the aims and objects outlined in the scheme for the administration of the Institute and accordingly their recommendations diverge. It seems to us that the period of five years prescribed for the appointment of the Reviewing Committees is too short a term for the Institute to produce appreciable results, based on the recommendations of their predecessors, and frequently the authorities of the Institute

are bewildered by the conflicting reports and recommendations coming in quick succession, and reducing this great organisation to a state of perpetual transition. If the reports of all these three Committees are carefully perused, one cannot fail to discover that each of them has honestly endeavoured to pull the Institute inside out, and then laboriously to reconstruct a fresh model on the personal predilections of the members. In none of these reports could we discover an account of how far the recommendations of the previous Committee have been adopted by the Institute and with what results, but on the other hand the Committees have proceeded to their task as if they were the first body investigating into the working of the Institute. What is most surprising is that neither the Government of India, nor the Council of the Institute are embarrassed by the periodical revision of the aims and objects of the Founder, and by the multitude of conflicting recommendations for their speedier and better achievement.

In view of the far-reaching importance of the recommendations made by the Irvine Committee, which in certain respects appear to us impractical, we are definitely of opinion that the Institute should have reasonably long period of time to give them a fair and honest trial, without being encumbered by a further instalment of fresh recommendations by another Quinquennial Reviewing Committee. If in writing their report the Irvine Committee had reviewed the progress of scientific investigations in the official and non-official centres of research, as was done by the Pope Committee, we are convinced that their proposals of reorganisation would have assumed a different complexion. The want of this necessary background,—whose importance in the enquiry of the character such as the Committee had undertaken to investigate, few will be disposed to dispute,—has invested their suggested arrangements with an air of unreality. It is pointed out in more than one section of the report that the Institute should co-ordinate with other centres of research, both in the theoretical and applied branches of science, and the general reader of this document can obtain no information regarding the state of development reached by these institutions, without which he may presumably form no conception of the nature and extent to which any co-operation can profitably be established.

Dealing with the aims and objects of the Indian Institute of Science, a subject which has been critically and carefully examined by two previous Committees which had formulated the policy in clear and unambiguous language, the Irvine Committee report that

“ it is more than ever necessary to secure that the policy pursued is consistent with the wishes of the Founder and of the contributing bodies,” and proceed to observe that

“ the province and purpose of the Institute must be defined in more precise terms than at present, and that such a definition should be adopted officially by the Council of the Institute and the Government of India. Only in this way can the aims and objects of the Institute be placed beyond individual and fluctuating interpretations; in the absence of such definition, no continuous policy can be developed.”

If these sentences are intended to imply that the Institute has been working for the past twenty-five years and more without any specific aim and without ambition to achieve any definite object and without regard to the intentions of the Great Benefactor, we are afraid that the Irvine Committee will find neither the Council nor the Government sharing their sentiment. Reviewing the activities of the Institute for over twenty-five years,* Alchymist indicated their underlying policy in these terms :

“ Higher authorities concerned in establishing the Institute were very definite on this point, however, as appears from a resolution by the Government of India in this matter dated 27th May 1909. During the discussion then prevailing Government were of opinion that the idea of combining in one Institution and entrusting to a single staff of professors both the teaching of science and the experimental development of new industries, was open to the obvious criticism that these two objects were in no way connected together.” Moreover the two educational experts (Professor Masson and Principal Clibborn) finally deputed to frame a scheme recommended, “ that the Institute should be devoted to experimental science, and should aim at training students in experimental methods, carrying on original research and discharging the functions of an accepted authority and referee on all scientific problems within its own domain.

“ Finally the Vesting order founds ‘an Institute of research in India’ and the attached scheme of administration inculcates ‘the promotion of original investigations in all branches of knowledge and their utilisation for the benefit of India’ without specific mention of industrial activities.”

In reviewing this official policy which continued to be the basis of the entire range of

* *Curr. Sci.*, Oct. 1932, p. 91.

activities of the Institute till 1921, the Pope Committee observed that

"the Founder of the Institute, the late Mr. J. N. Tata, desired to establish an Institute of Research; so far as our information goes he introduced no limiting clauses in connection with his benefaction, but it is probably beyond dispute that he desired to build and endow an institution which would provide Indian students with such facilities for work and training as would enable India to compete on equal terms with other countries as a producer of new knowledge and that he wished his Institute to aid Indian students to serve India in Science and Technology. It cannot be doubted that, under the conditions briefly stated above, the objects which the Founder had in mind will be best served by the provision of preliminary training in scientific methods and knowledge, supplementary to more Elementary Scientific education, for the purpose of preparing selected individuals for careers based upon original work in either pure science or technology."

In further examining the aims and objects of the Institute, the Sewell Committee wrote that

"while agreeing with the resolution of the Pope Committee that 'it is undesirable that the activities of the Institute, in connection with teaching and research, should be confined to matters which bear on the application of science to industry,' we are of opinion that in the future more attention should be paid to those lines of research that have or may have a direct bearing on the existing industries of India or that may be expected to open up fresh industries at present undeveloped in this country."

The Irvine Committee observe that

"neither of these reports challenges the view that the Founder desired to encourage industry and this remains the primary function of the Institute."

"In coming to the above conclusion it is far from our intention to deprecate academic research. We are fully alive to the advantages and the cultural and material benefits which accrue from fundamental scientific work; equally we recognise that there is no conflict between pure and applied research which can be and ought to be, prosecuted side by side to their mutual advantage. We are chiefly concerned with the problem as to which of these complementary activities should carry the greater emphasis and we hold strongly the opinion that, in accordance with the wishes of the Founder, this emphasis should be laid on the application of scientific research to industry."

These views are obviously opposed to the resolution of the Government of India and to the opinions of the educational authorities deputed to frame a working scheme thereunder. The Pope and Sewell Committees did not exalt industrial research to the position of pre-eminence, subordinating academic enquiries. The fluctuations in the interpretation of the fundamental intention

of the Founder were not the making of individuals, but are entirely due to the personal predilections of the Committees. The Irvine Committee were led to formulate their views expressed in their amendment to Clause 3 in the Regulations chiefly because in their opinion the phrase "the benefit of India" occurring in the Scheme of Administration, implies "that the activities of the Institute should be devoted primarily to securing for India the material benefits expected to follow from the close association of the scientific research with the industries of the country". This is only partly true, for the scheme of administration comprehends something more fundamental than material prosperity, for it specifies,

"That the object of the Institute shall be to establish Chairs and Lectureships in Science and Arts, especially with a view to the promotion of original investigation in all branches of knowledge and their utilisation for the benefit of India."

If, however, the Irvine Committee had considered in their report the progress of work achieved in other institutions specially equipped and organised by the Provincial and Central Governments to investigate material and cognate problems, they would have expressed their views regarding the aims and objects of the Institute in more restrained terms. Besides in formulating the scientific policy of a Foundation which has carried on its activities for over 25 years on the basis of the resolution of the Government of India at the time of its inception, the Committee should have taken into consideration the geographical position of the Institute, its existing equipment and organisation, the training, knowledge and capacity of the members of the staff to give practical effect to the new proposal.

We shall now proceed briefly to deal with some of the specific recommendations of the Committee. In their suggestions respecting the correlation of research work conducted in the Institute with the industrial needs of India, they observe

"That it is essential to relieve the staff of the sole responsibility for finding industrial problems for investigation. These problems should be submitted to the Institute by some responsible body capable of collecting proposals from India as a whole and of sifting them so as to exclude merely routine enquiries and suggestions which are too unwieldy to be handled by the comparatively small number of workers available at Bangalore. The initiation of problems might well be undertaken by such bodies as (1) The Industrial Intelligence and Research Bureau,

(2) The Imperial Council of Agricultural Research and (3) Departments of Industries."

Writing on the claims of External Bodies on services of staff, the Pope Committee wrote as follows :

"It will be at once obvious that if outside bodies or persons including governments and administrations, exercise any claim upon the professional services of the professorial staff of the Institute, grave difficulties will immediately arise connected with what may be termed the regular work of the staff, namely, the training of students and the prosecution and direction of research work. In a country like India, which is doubtless on the eve of great developments in its natural resources and which does not as yet command in its industries the services of technologists in all the branches of scientific industry which will be established in the near future, it is conceivable that the interest of the country may be best served by utilising for specific investigations the services of one or other members of the staff of the Institute. We are, however, of opinion that unless imperative necessity demands, it is undesirable that the members of the staff of the Institute should be drafted away to deal with outside problems which may present themselves to Indian governments and administrations."

It is obvious that a research institution of the magnitude and importance of the Indian Institute of Science should be permitted to enjoy complete scientific autonomy within its own domain, and any attempt to restrict its freedom may result in the defeat of the very object which the Irvine Committee are so genuinely eager to promote. During its fairly long history, the Institute has established certain traditions, and reform in the desired direction must proceed on lines of least resistance. The transformation of the Institute into a centre of industrial research, so as to secure the material welfare of India, can take place, provided it is re-equipped and re-staffed and the external agents continue to supply a steady stream of problems.

In their recommendations to make applied research the first and most responsible duty of the Institute, the Irvine Committee suggest that "the active prosecution of applied research should be regarded as a duty, willingly undertaken with the certain knowledge that the more energetically this duty is fulfilled, the less scientific prominence becomes attached to the workers themselves. Few publications are likely to result from such research work, but this need not be deplored if in the end the Institute is made to play the part for which it was created." Assuming that the Institute was brought into being solely for the purpose

of promoting industrial research, it is conceivable how far the ideal of self-efacement advocated by the Committee will attract scientists of eminence to the work outlined in the scheme. Most scientific men are, generally speaking, regardless of the worldly goods, and as a compensation they naturally look for the recognition of their work by the learned societies, whose distinctions are, however, awarded absolutely on the basis of published records. Suppose there is a fall in the number of papers, will the professors of the Institute have the assurance that they are immune to the criticisms of the next reviewing committee for such paucity.

Commenting on the financial position of the Institute, the Committee observe that "income no longer balances the normal recurring expenditure, and it has become necessary to draw on the accumulated reserves in order to meet the annual deficit." In Part II of the report the figures for income and expenditure for seven years are given in a tabular form, and we calculate that the total revenue for this period amounted to Rs. 40,03,678 and the recurring expenditure for this period amounted to Rs. 37,95,735. The income did balance "the normal recurring expenditure". During this period, however, the Institute spent Rs. 5,18,549 under the head "non-recurring expenditure", which manifestly utilised in the extension of existing buildings, or the addition of new ones, or in the purchase of costly apparatus, must be of permanent value as additional investment. If the accumulated reserves have been partly used up for this purpose, the authorities of the Institute had the support of the Sewell Committees which wrote that "the opening balance in each case includes funds held in suspense for retiring allowances and depreciation; the portion of the opening balance now available for ordinary expenditure is Rs. 6.55 lakhs. Although in some undertakings such figures would indicate a most satisfactory state of affairs we view with some apprehension the accumulation of funds to this extent in an institution which is purely educational. It is open to question whether this accumulation of funds is justified when the Institute is in receipt of substantial grants from some of the Provincial and State Governments."

We propose to deal with the remaining sections of the report in our next issue.