

Expectations of Industry from the Department and its Graduates.

A SYMPOSIUM on "Expectations of Industry from the Department and its Graduates" was held on 3rd December 1955, under the auspices of the Technological Association. The following distinguished persons from Industry took part in the symposium.

Mr. S. M. Mehta of Paragon Textile Mills, Bombay.

Mr. S. H. Turner of Lever Brothers (India) Ltd., Bombay.

Mr. D. M. Trivedi of Kesar Sugar Works Ltd., Bombay.

Mr. T. R. Sathe of Associated Research Laboratory, Bhor.

Dr. H. E. Eduljee of National Peroxide Ltd., Bombay and

Mr. G. K. Dixit of Lederle Laboratories (India) Ltd., Bulsar.

Dr. K. Venkataraman, Director of the Department, presided.

Mr. Mehta, the first speaker, in his opening remarks, cited the non-versatility of the chemical technologist. According to him, the chemical technologist has as much to do with machinery as with chemistry and he should bear this in mind and take full interest in machinery, mechanisms, materials etc. Furthermore, he should obtain full experience of being able to handle every type of work himself. The graduate should then learn the technique of getting the work done by others under his general supervision and thus gradually make himself competent to be a good executive. In the opinion of Mr. Mehta, every fresh man should work with a view to give the maximum experience by doing all types of work, regardless of the salary paid to him; although he did desire that Indu-

stry offer a reasonable minimum starting salary to a fresh graduate.

The next speaker, Mr. Turner, said that there was much to be desired from graduates offering themselves for posts in industry. According to him, there was a very wide variation in the quality of men, either from this Department or from other Universities; and industry protected itself from the engagement of unpromising material by applying suitable methods of selection.

In his opinion, much disappointment and waste of time and efforts on the part of graduates could be avoided, if schools and colleges were able to do more in the way of giving early guidance to science graduates in the choice of a career, for which they were most suitable, whether in industry, teaching or research. Industry required graduates who could apply scientific methods and knowledge to its problems and who, in addition, were possessed of intellectual curiosity, integrity, a critical faculty and a genuine interest in technology. The essential additional qualities for success in industry were, in the opinion of the speaker, potentialities of leadership, which could be developed by the training that industry was ready to give to selected men, and the ability to work in a group by co-operating with other members of the group and attracting their co-operation, acceptance and support. Habits of observation and sufficient interest in industry to have visited factories, to see manufacturing processes being carried out, were elementary requirements that were, according to Mr. Turner, not always met with in candidates for employment in industry.

In conclusion, the speaker had little to say about the expectations of indu-

stry from the research activities of the Department. On those occasions, when the business he represented had called on the Department for assistance in investigational or special analytical work, the results had been wholly satisfactory.

According to the next speaker, Mr. Trivedi, Institutions like this Department can help industry materially in many ways such as :—

- (a) by helping to improve existing processes and products which are already manufactured,
- (b) by developing new processes and products having a bearing on existing productions as a means of increasing the total volume of productions and reducing costs,
- (c) to anticipate the growing requirements of new products and to initiate work on these products with a view to fill their need in this country and
- (d) to take up work on the basis of Industry as a whole for Industry e.g. for evaluation of standards or for evaluating the minimum requirements or properties of Plastics as engineering materials etc., etc.

Many examples were cited by the speaker. Among those mentioned were phenol, phthalic anhydride, rubber chemicals, organic solvents, diacetone alcohol, lithopone, aniline, acetylene and black MnO_2 for dry cell battery.

Mr. Trivedi was of opinion that the Indian Chemical Industry was not in a position to spend for experimentation on small plants for the simple reason that it has no finance to improvise its own plants and processes. Institutions like these which, according to him, have both equipment and competent staff, need to have only materials and working finance

for which Government help is generally available.

What was important, in the opinion of the speaker, was to develop the right attitude of mind towards industrial research and to change the approach regarding research to only taking up problems of industrial importance on a priority basis, which alone is the way to rapid industrial expansion in our country.

Mr. Sathe, the fourth speaker, emphasized the important rôle that technologists have to play in bringing about a scientific and technocratic revolution in the country for the attainment of economic progress.

According to the speaker, contacts with industry should be fostered in order to solve their technical difficulties ; and the establishment of a Technical Information Service should be undertaken by the Department for the benefit of the Industry. Mr. Sathe also stressed the need for long range fundamental research work for the healthy growth of the indigenous industry ; and in his opinion, Institutions like this Department, are best suited to carry out such work, and they should, therefore, be more actively supported by the industry by way of larger financial support.

Dr. Eduljee, the next speaker, pointed out the remarks of previous speakers about the expectations of this Department and its graduates, but according to him, it remained to be sought whether industry had itself made any efforts to help the Department to give back what it wanted. In his opinion, Industry would do well to donate equipment and allow students to work in factories during vacations, so that they acquire the practical experience and mechanical sense, as desired by a previous speaker.

The speaker said that there was a misconception about the functions of the

Department. According to him, the duty of the Department was to turn out men who are grounded in the fundamentals of their profession and whose minds have been trained to stay and not mere technicians. The speaker supported Mr. Turner in demanding that the students should have intellectual curiosity, imagination, boldness—qualities which they often lack and maintained that it was the duty of the teaching staff to impart these qualities to the students during lectures, research work and by personal contacts.

Speaking about the difficulties of the Indian Chemical Manufacturers, the speaker pointed out that the curious fact about the Chemical Manufacturers, who are so conscious of their difficulties, did not come themselves to the Department and sponsor research. According to Dr. Eduljee, research costs money and if Industry expected the Department to help them, then the Industry must provide some of the money for it.

The research work, concluded Dr. Eduljee, should be more planned and integrated on a long-term basis and should be carried out co-operatively by several sections of the Department, so that the final results will be a process which can be used by Industry.

The next speaker, Mr. Dixit, gave some concrete suggestions as to what this Institution could do to meet the growing needs of the Industry, the pharmaceutical industry in particular, in supplying the right type of men.

A programme of research, to be taken up jointly with industries on problems facing the manufacturers, was needed. He further added that, besides possessing theoretical know-how, the students should take up problems of a practical type for research and if necessary, the hours of work in the Department may

be increased. Moreover, they should be made to do all sorts of jobs in the college itself, so that in factories they will not feel that certain jobs are too small for them. Students, according to Mr. Dixit, should be trained to create love for accuracy, checking and cleanliness in manufacturing. It may be worth while giving the students training on small manufacturing problems.

In the discussion that followed, Dr. S. M. Shah (Reader in Chemical Engineering, B.U.D.C.T.), referring to Mr. Trivedi's suggestion that the Department should work out industrial problems to supply design data to the industry, said that the work of pilot plant character was not possible from normal laboratory grants, but it could be undertaken only if it were financed by industry. It was not possible, Dr. Shah continued, for fresh graduates of the Department to assume directly charge of routine production and it was the duty of the industry to train the fresh entrants. Finally, he regretted the step-motherly attitude of industrialists towards our students during the works practice training.

Mr. T. N. Basu (II Year B.Sc.Tech. student) stressed the need of establishment of process control laboratories in all textile mills.

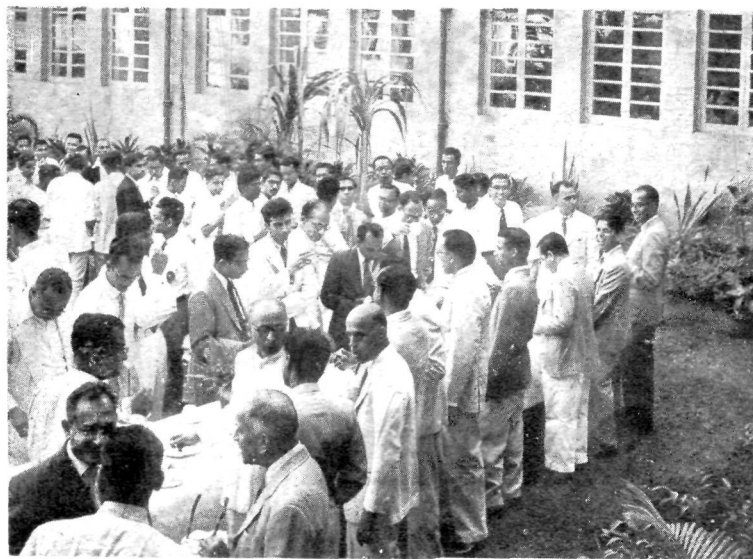
Dr. B. D. Tilak (Professor of Dyestuff Technology, B.U.D.C.T.) endorsed the views of Mr. Sathe, Dr. Eduljee and Mr. Turner as regards the need for the graduates of the Department to develop powers of critical observation and judgment. He welcomed contacts and co-operation with industry and stressed that, in fact, the Department has often taken the initiative in this regard. Further, Dr. Tilak emphasised the need for a reasonable starting salary to be given to the Departmental graduates both in industry or for research work in the Department.

"THE SYMPOSIUM"



(From L. to R.) MR. MEHTA, DR. EDULJEE, MR. SATHE,
DR. VENKATARAMAN, MR. TURNER, MR. TRIVEDI AND MR. DIXIT.

"ANNUAL GATHERING"



IS THIS AN ANNUAL DAY OR A TEA-DAY?

Mr. R. K. Prabhudesai (Research student, Chemical Engineering section) pointed out that during the course of interviews, the first thing that an industrialist desired from the fresh graduates was previous factory experience! The graduates were also expected to possess theoretical and practical knowledge of all the branches of technology which is, certainly beyond the average mental and physical agility as well as capacity of a single individual in an age where every branch of Technology has developed considerably. In addition, they were asked (in return of all this) not to lay too much stress on starting salary, which, according to the speaker, is too much for the Industry to expect from a fresh graduate.

Mr. K. M. Gandhi (I.C.I. (India) Ltd.) suggested that facilities for organized training should be maintained by all industries.

Mr. S. M. Mehta (Paragon Textile Mills) put full emphasis on the fact that the initial salary should not prevent the graduates from putting in maximum work in industry.

Mr. S. S. Malhotra (Research student, Director's Laboratory) suggested that industrialists should set aside a part of their profits for encouraging industrial research.

Dr. Venkataraman, the Director of the Department, in his concluding re-

marks, thanked the speakers for taking part in the Symposium and for giving the staff and students of the Department the benefit of their views on the teaching and research programme of the Department in relation to the requirements of industry. According to him, the Symposium was held at an opportune time because plans for the development of the Department during the next five years were at present under the active consideration of the University authorities, the All-India Council for Technical Education and the University Grants Commission. The broad impression to be gathered from the discussion, according to Dr. Venkataraman, was that the courses for the B.Sc. Tech. and B.Chem. Eng., the equipment of the Department, and the work carried out by the teachers were on the whole satisfactory, but that students should take fuller advantage of the facilities offered by the Department. On the other hand, industry might reasonably offer them a more adequate starting salary than they were usually able to obtain at present. The Department, he continued, had undertaken and carried to completion numerous schemes of research on behalf of industry, but it was to be hoped that still closer contact between the Department and industry will be maintained in the future. In conclusion, he expressed thanks for all the suggestions made by the speakers and said that these would be taken carefully into account and implemented as far as possible.
