SIR PHEROZE KHAREGAT

The death of Sir Pheroze on 22nd January 1958 has removed from the country a distinguished member of the old Indian Civil Service. Although an administrator by profession he was primarily a thinker and a philosopher, possessing an encyclopedic knowledge of Indian agriculture and insight into its problems which for its sheer penetrating power and analysis even exceeded that of a specialist whether in agronomy animal husbandry, statistics or any other branch of the agricultural science. His memorandum on the development of agriculture and animal husbandry published in 1945* known as the Kharegat Plan was a masterpiece of simple, practical and efficient planning and remains so even today. Perhaps his greatest triumph was not that his plan was accepted and put into effect but that he presented it to the country at the right moment just when FAO of the United Nations was born with the avowed purpose of freeing the world from hunger. As a result of this Plan Sir Pheroze became an architect of the first Federal Ministry of Agriculture in India.

Sir Pheroze was born on 29th May, 1890. He graduated from Elphinston College, Bombay, and Clare College, Cambridge, and entered the Indian Civil Service in 1914. He served as Magistrate and Collector in U.P. for 8 years, Registrar of Corporate Societies for the next 4 years and as Secretary to the Government of U.P. in the various departments during the following ten years. In 1938 he came to the Government of India first as Vice-Chairman, Indian (Imperial) Council of Agricultural Research and later became the Additional Secretary to the Department of Education, Health and Land and finally the Secretary to the Government of India in the Department of Education, Health and Lands and the new Department of Agriculture born out of his own Plan. It was as Secretary to the Government of India that he retired in 1947. After his retirement he served again as an Honorary Regional Commissioner for Food Production at the special request made to him by Shri R. K. Patil and also a special adviser to the Director-General of FAO. But he gave up all his activities with agriculture in 1951.

With the Indian Society of Agricultural Statistics of which he was an honorary member his association was intimate from its

* A Summary has been reproduced in this issue.

inception, but his association was even closer with the development of agricultural statistics in India. It is tempting, therefore, to trace the history and growth of agricultural statistics of India, for much of it is the result of inspiration received from Sir Pheroze.

It was in 1938 when the writer was being interviewed by the Public Service Commission for the post of statistician in I.C.A.R. that he saw Sir Pheroze first, sitting with the Commission. A small lean figure, he was representing I.C.A.R. at the Commission. He asked no question but when the Chairman asked the writer to summarize in layman's language the significance of his contribution on 'bipartitional functions' published in the *Philosophical Transactions of the Royal Society in London* and subsequently on hearing the answer remarked that it was all Greek and Latin, Sir Pheroze intervened that it was all precisely such young men who wrote in such leading scientific journals abroad that he wanted to have in I.C.A.R. Subsequent encouragement which the writer received in his work as statistician to the I.C.A.R. was only in keeping with this interest which he showed at the interview. Although the work was primarily of an applied nature Sir Pheroze always reminded the writer and his colleagues of the need to keep in active contact with the basic theory of statistics and advances made therein from time to time. It was easy, he said, to be lost in applied research of the Council only to find when it is too late that one is a back number in science. He, therefore, freely encouraged research in theory along with the normal work and left it to the individual research worker to develop it according to his own skill and interest. It was this far-sighted attitude which explained the rapid growth which the Indian agricultural statistics saw in the next few years. As an example of the way in which he encouraged and helped to strengthen the statistical activities in agriculture can be mentioned the critical statistical appraisal which the writer undertook, at his instance, of a certain 10-year research project in animal breeding which was in progress in India under the direction of a well-known foreign expert.

The appraisal showed that not only was there no improvement but a significant deterioration had taken place in the herd. None of the sires could be adjudged as capable transmitters and the genetic variability was too low to offer scope for selection among the females. It was clear that animal breeding for its improvement could not depend merely on the management of the herd and the personal judgement of the breeder in matters concerning cullings and matings but that a scientific selection based on the principles of statistical genetics was

essential to bring about a genetic improvement. This statistical appraisal served as a pointer to what could be accomplished with the use of statistical methods and led to the first sizeable expansion of the statistical office of the I.C A.R. For, it was clear to Sir Pheroze that only critical and continuous statistical assistance could help to improve the efficienty of agricultural research and avoid the immense waste of effort and expense that was apparent in many of the projects sponsored by the Council. This and similar other examples of statistical appraisals led in their turn to the demand for more advice and consultations and for more trained statisticians for employment in the research scheme in agriculture and animal husbandry. This was the beginning of the establishment of the statistical training courses for agricultural workers in I.C.A.R., which were subsequently enlarged to include the post-graduate training of professional agricultural statistician.

Side by side other developments of even greater importance occurred in the field of agricultural statistics. The widespread famine in Bengal and the scarcity of foodgrains created by World War II stressed the urgency of improving the reliability of forecasts and estimates of agricultural production in the country. Although over two-thirds of India was cadastrally surveyed and had in operation a system for accounting acreage under different crops field by field by the local Patwaries which gave fairly reliable estimates of acrage under different crops, it was clear that the system in respect of the yield rate was highly defective. The yield rate, as is well known was measured as the product of what is called a normal yield and the condition factor. The normal yield is an average yield on average soil in an average year. The condition factor on the other hand is a visual impression of the capacity of the crop to yield in an individual year in terms of the normal. The subjective factors entering into the estimation of both coupled with the fact that relief in taxes was granted whenever the yield fall below a certain figure resulted in underestimation of the rate of yield. To Sir Pheroze it was clear that only modern statistical methods could improve the statistical estimation of yield rates and he entrusted the I.C.A.R. and its Commodity Committee with the task of evolving a method for this purpose suitable under Indian conditions. This assignment resulted in the development of the use of the random sampling method for estimating yield rate whose efficiency and practicability was demonstrated on a pilot scale over small areas in different States. The success which attained this method was such that in the course of a few years the method was extended almost over the entire country

and to all principal crops. The demands which this assignment made on the statistical unit of the I.C.A.R. by way of a research programme in sampling, training of the State statisticians, assistance to the latter in the training of field staff running into several thousands and in the collection, compilation and analysis of the resulting mass of data were immense, and resulted in the re-organisation of the entire statistical work in the I.C.A.R. into what is now a full-fledged institute doing research, consultation and training in agricultural research statistics for the entire country.

The role which Sir Pheroze played in this expansion was not merely that of an administrator giving encouragement and funds; it was more than that. It was his assessment and appreciation of the statistical problems involved in research which helped to secure his sympathy and support for the development of agricultural research statistics in India. So great was his interest in the development of agricultural statistics that Sir Pheroze often accompanied the writer to inspect the fieldwork. The visits were usually unannounced and led to the tightening of supervision over the entire fieldwork. As another example can be quoted a comment which Sir Pheroze gave on a certain report advocating the use of sampling in place of complete enumeration for estimating acreage under crops, a comment which had been made with such skill and penetrating observation that even a well-trained statistician would find it difficult to offer. Commenting on the Bihar Crop-Survey (Mahalanobis, 1945)* he wrote "Taking wheat, I see that the area estimated in one district in 262 thousand acres between 11th February and 23rd February and rises to 360 thousand acres between 25th February and 6th March and thereafter it falls. The fall is intelligible and means that the crop has been out. The inference is that it is pure waste of time to carry out the work after 6th March. On the other hand, the increase between 11th February and 6th March is impossible and shows that one or the other figure is wrong. If there is a difference of 37% between the two figures, the whole calculation is valueless. In the other district the position is even worse. The area goes down from 307 thousand acres from 12th February to 25th February to 245 thousand acres between 26th February and 7th March. This might mean that the crop was cut after 25th February. But thereafter the acreage increases to 256 thousand acres between 21st March and 2nd April. Here again all I can say is that the figures are patently absurd.

* Mahalanobis, P. C. (1945), "Report on Bihar Crop Survey," *Sankhya*, **7**, 29–106.

It is physically impossible for the acreage to have increased in the period." There are numerous such examples to be found in the files of the I.C.A.R. which speak of the role which Sir Pheroze played in the development of statistical work of I.C.A.R. For this reason Indian agricultural statistics loses in Sir Pheroze a champion of its cause, but it has this satisfaction that before he died he at least saw that the cause for which he gave encouragement and support was established on a sound footing.

Of his personal qualities it is enough if one said that Sir Pheroze believed in simple living and high thinking. A small lean figure he was modest and shy. So great was his sense of courtesy that every time one entered his room Sir Pheroze would get up to welcome you whether you were his officer or clerk. He spoke in a low voice and wrote in a small hand but this contrasted sharply with the tone of his notings which were critical and firm as occasion demanded. He judged his officers by their work and capacity for it and so solid was his support for you that he would not abandon the fight even if skies would fall. Suffice it to say that but for his support in the struggle against persistent hostility to the agricultural research statistical work in the I.C.A.R., there would have been a complete collapse of this work long ago instead of his blessing to-day as the Institute of Agricultural Research Statistics.

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