ANIL KUMAR GAYEN

(1919–1978)

Elected F.N.I. 1966

ANIL KUMAR GAYEN was born on February 1, 1919 in a family of peasants belonging to a small village in Midnapore district, West Bengal. He lost his father in childhood. As a result he had to face a lot of hardships in his youth. These hardships did not deter him from pursuing education. Not only did he brave these difficult days but he also established himself as an eminent educationist and a social worker through hard work, dedication, ability and talent.

EDUCATION

Professor Gayen had a brilliant academic career. He completed his college education from the Calcutta University, getting first class. He obtained B.A. Hons (in Mathematics) in 1939 and M.A. in Applied Mathematics in 1943. He topped the list of successful candidates in the Master of Arts examination. He joined the Cambridge University in 1947 as a senior research scholar in Mathematical Statistics where he received his Ph.D. degree in the subject in 1950.

PROFESSIONAL CAREER

From 1944 to 1947, and later on from 1950 to 1954, Professor Gayen was engaged in teaching and research in statistics under the guidance of Professor P. C. Mahalanobis, both at I.S.I. and the University of Calcutta. He joined the Faculty of Mathematics, Indian Institute of Technology, Kharagpur, as Assistant Professor in 1954. He was promoted to the post of Professor in Statistics in 1965. He was the Head of the Mathematics Department from 1966 to 1974. In 1971, he was appointed Professor in the senior scale, a post he held till his death. During his stay at I.I.T., Professor Gayen developed a strong group of research workers in theoretical and applied statistics. Under his expert guidance and supervision sixteen research scholars completed their doctoral work.

Professor Gayen worked as Director of Studies of a research project on educational measurements sponsored by the Ministry of Education and the National Council of Educational Research & Training. The results of this team research have appeared in the form of six volumes which won the appreciation of educationists like Dr K. L. Shrimali, Sir John Sargent, Dr Zakir Hussain, Dr Triguna Sen, Dr B. D. Nagchoudhury and Dr V. K. R. V. Rao. Professor Gayen was

A.K.Gayen
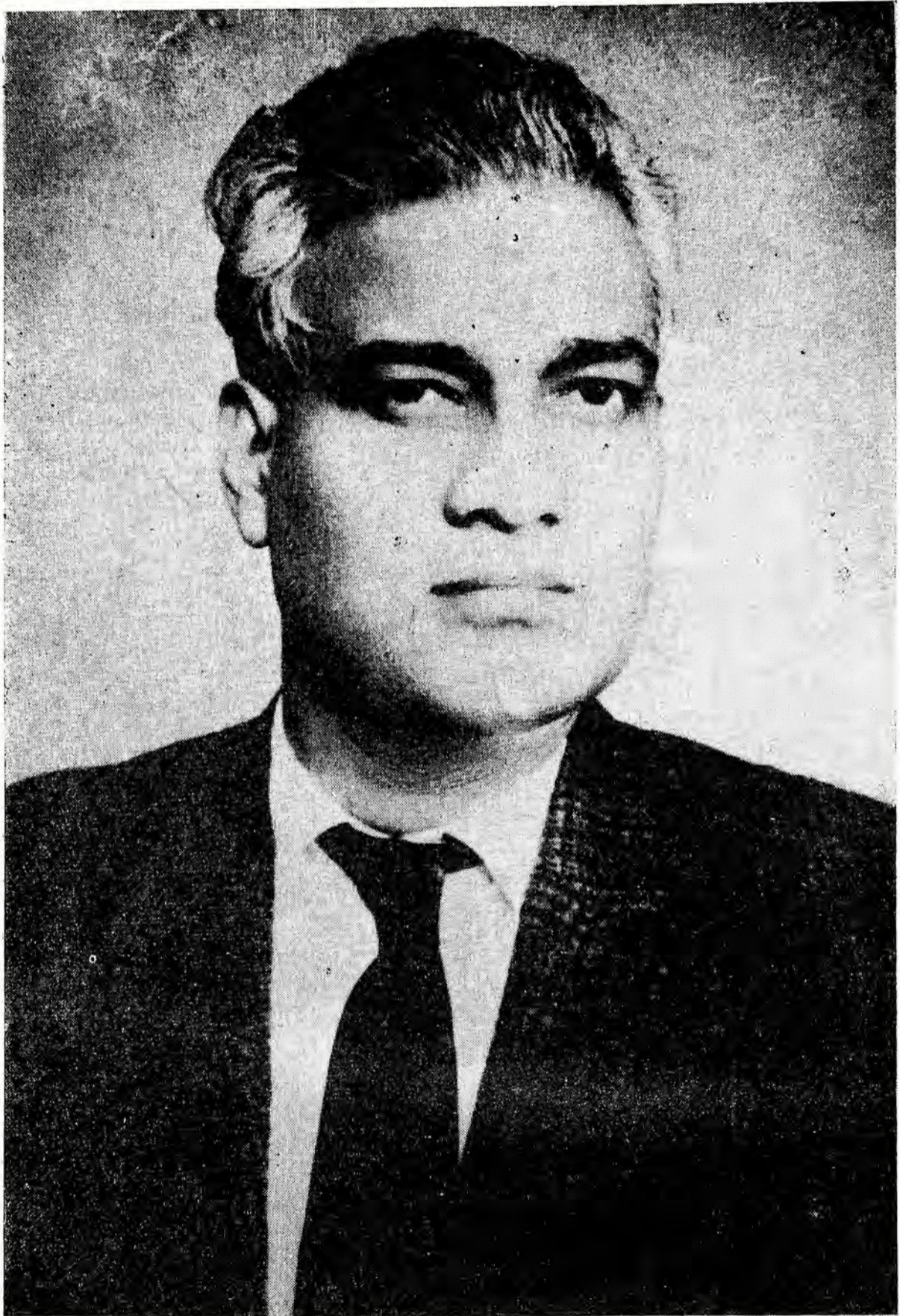
Chief Editor of *Indian Society for Quality Control Bulletin,* a journal devoted to the statistical quality control problems in industry and market research. A few monographs on quality control in industry, control charts on shop floor, acceptance sampling techniques, etc. were published by this Society under the authorship of Professor Gayen. Professor Gayen was the Founding Editor of publications of the Indian Society of Psychometry and Education. He served as an Editorial Secretary of the *Proceedings of ISTAM.* He was author of a popular and well-known book on *Advanced Calculus.*

CONTRIBUTIONS TO APPLIED STATISTICS

Professor Gayen made significant contributions in the field of applied statistics. This is reflected from the attached list of numerous publications in journals of international repute. His studies, connected with the effect of non-normality on standard normal theory tests of significance, are well known to workers in the field. To cite a few, Professor R. L. Plackett's book on *Regression Theory* devotes a number of sections to Professor Gayen's work on properties of permutation distributions and departures from standard test conditions. His results on non-normal sampling distributions are included in Dr O. L. Davis's book entitled *'Indusrtrial Experimentation.''* Professor C. R. Rao's well-known book on *'Linear Statistical Inference and Applications'* mentions his research work dealing with the distribution of product-moment correlation coefficient. Results of these studies on the measurement of discriminating powers and reliability of tests are being widely used by research workers in psychometric and educational measurement problems.

HONOURS

Professor Gayen won various academic honours and distinctions. He was elected Fellow of both the Royal Statistical Society and the Cambridge Philosophical Society in 1950. He became Fellow of the Indian National Science Academy in 1966. He was member of various professional and academic societies like Indian Statistical Institute, ISTAM, Indian Society for Quality Control etc. He was President of the Statistics Section at the 58th session of the Indian Science Congress, Bangalore, in 1971.

Apart from these academic distinctions, Professor Gayen served as member of several expert committees appointed by the State and Central Governments to look into the problems connected with educational and examinatio-reforms, development of Indian Standards etc.

SOCIAL WORKER

Professor Gayen was not only a well-known educationist but also an untiring social worker who devoted much of his time for the uplift and welfare of economically and socially backward people. Inspired by the ideals and teachings of the Ramakrishna Mission and of Shri Iswar Chandra Vidyasagar, he strove to provide

weaker sections of society adequate opportunities for education. To this end he founded the Regional Education Association, Midnapore to serve as a forum to educationists of the district to suggest ways of improving eduction. The association under his Presidentship recommended the setting up of a new type of university which would look after the educational aspirations of the backward sections of the people of the Midnapore district. Dr Gayen's almost single handed efforts bore fruit when the State Government and the Government of India accepted his proposals. The physical and mental strain involved in this herculean task proved too much even for a man of his sturdy health and stamina as a result, he passed away on February 7, 1978. It is perhaps no exaggeration to say that he sacrificed his life to make his mission a success.

B. R. Seth

BIBLIOGRAPHY

1946. A note on the expected discripancy in the estimation (by Double sampling) of a variate in terms of concomitant variate when there exists a non-linear regression between the two varieties. *Śankhya*, **8**, 73–74.

1949. The distribution of student's *t* in random samples of any size, drawn from non-normal universes. *Biomet.*, **36**, 353.

1950. The distribution of variance-ratio in random samples of any size drawn from non-normal universes. *Biomet.*, **37**, 236.

1951. The frequency distribution of the product moment correlation coefficient in random samples of any size drawn from non-normal universe. *Biomet.*, **38**, 219.

— A study of recent trend in infantile mortality rates in Calcutta by longitudinal survey. *Sankhya*, **11**(2), 167–182.

— Studies in the nature of income structure in India. *Bull. Statist. Inst.*, **XXXIII** (3), 241–248.

— On the advantages of longitudinal survey for the determination of infantile mortality, rates in India. *Bull. Statist. Inst.*, **XXXIII**(4), 105–112.

1952. The inverse hyperbolic sine transformation on student's *t* for non-normal samples. *Sankhya*, **12**, 105.

1953. On setting up control charts for non-normal samples. *I.S.Q.C. Bull*, **I**(1), 1–5.

1954. Factors in the study of personality. *Indian J. Pschol.*, **XXI**, 87–96.

1955. On the sampling distribution of mean square successive difference. *Proc. First Congr. Theoret. Appl. Mech., Kharagpur India* 253–260.

1956. On the determination of weights for different branches of high school mathematics. *J. Edu. Psychol., Baroda, India*, 244–256.

— Washability curves and variability of ash in coal. *Proc. Second Congr. theoret. appl. Mech., New Delhi, India*, 253–260.

1957. On auto-correlations of harmonic functions. *Proc. Third Congr. theoret. appl. Mech., Bangalore, India*, 345–350.

— Upper and lower control limits for means in cases of non-normal variation. *J. Sci. Eng. Res.*, **1**(1), 43–50.

— On some statistical techniques involved in the problem of testing of material. *I.S.Q.C. Bull.* **IV**(3), 99–104.

1958. Statistical model for chemical measurements. *J. Sci. Engg. Res.*, **II**, 124–128.

— Some aspects of prediction problems in time series. *Proc. Fourth Congr. Theoret. app. Mec. Howrah, Calcutta, India*, 285–292.

1959. Significance of difference between the means of two non-normal samples. *Biomet.,* **37,** 399.

1960. Statistical methods in turbulence studies. *J. Sci. Engg. Res.,* IV(1), 155–189.

1961. Measurement of achievements in mathematics—with a foreward by Dr K. L. Shrimali, Education Minister, India.

— A series of statistical studies on the effectiveness of Board or University Examinations in India. Published by Govt. of India, Min. of Education & National Council of Education Research Training, through Indian Institute of Technology, Kharagpur.

1962. Measurement of achivements in english—with a foreward by Sir John Sargent, Formerly Educational Adviser to the Government of India.

1964. Measurement of achievements in some Indian language (Hindi, Bengali and Sanskrit)—with a Foreword by Dr Zakir Hussain, President of India.

1966. Control charts on shop floor—*Indian soc.* Quality control *Bull.,* **XII,**

1967. Measurement of achievements in physics and chemistry—with a Foreward by Dr T. Sen, Minister of Education.

1968. On grouping of achievements alikeness. *J. psycho. Res.* **VI,** 81.

1969. Measurement of achievements in history, civics and economics—with a Foreword by Dr V. K. R. V. Rao, Minister of Education, Government of India.

1970. Measurement of achievements in geography, general science and biology—with a foreward by Dr B. Nagchaudhuri Member (Education) Planning Commission, New Delhi.

— Prognostic and diagnostic aspects of achievements in examinations and measurement of certain qualities of question items—*Indian J. Psychometry. Edu.,* **1,** 2.

1971. Robust Tests and Estimation in Statistics—*Indian Sci. Congr. Assoc.* (58th Session) Statistics Section Presidential Address.