

Obituary

GERTRUDE MARY COX, 1900–1978

GERTRUDE COX is probably best known to British statisticians as the joint author with W. G. Cochran of *Experimental Design*, still the best practical book on the design and analysis of replicated experiments, and for the part she played in the founding and development of the Biometric Society, of which she was a founder member, the first editor, from 1945 to 1955, of the Society's journal, *Biometrics*, Council member 1948–50, 1955–57 and 1973–75, and President 1968–69. Her achievements, however, covered a much wider field. By her missionary zeal, her organizational ability and her appreciation of the need for a practical approach to the statistical needs of agricultural, biological and medical research workers she did much to counter the confused mass of theory emanating from mathematical statisticians, particularly in the United States, who had little contact with scientific research.

Born on January 13th, 1900, at Dayton, Iowa, she came to statistics just at the time when Fisher's influence was spreading to America. On leaving high school she spent several years preparing herself to become a deaconess in the Methodist Episcopal Church, including some time spent caring for children in an orphanage in Montana, but entered Iowa State College, Ames, in 1925, and took her B.S. degree in Mathematics in 1929. Snedecor, who had been a member of the Mathematics Department since 1913, and had early recognized the need for developing better statistical methods to deal with the practical problems of agricultural research, was at that time developing a mathematical statistical service, and was one of the first to recognize the importance of Fisher's work. The practical utility and logical clarity of the Fisherian approach doubtless attracted Gertrude and she continued at Ames to take her M.S. degree in 1931, the first awarded in statistics. She then spent two years at the University of California in Berkeley as a graduate assistant, working on psychological statistics.

She returned to Ames in 1933 at Snedecor's invitation to join his newly formed Statistical Laboratory. She first met Fisher in 1931 when he spent six weeks at Ames as visiting professor, and again on a similar visit in 1936. She thus got to know Fisher well, particularly on the second visit, when she and Es. Brandt saw to it that Fisher was well looked after, and that, as far as he could be persuaded, the somewhat puritanical conventions of the campus at that time were respected. I recall that on a similar visit by myself in 1937, when I in turn got to know Gertrude, Brandt told me that she had discussed with him whether I should be informed that smoking was not allowed. It was decided to say nothing, but to drop a hint by not providing an ashtray in my room!

In 1940 Gertrude was selected, on Snedecor's recommendation, to organize and head a Department of Experimental Statistics at North Carolina State College, Raleigh. The appointment of a woman to this post must at the time have surprised many in the South, but was fully justified by the outcome. Her abilities in fund raising and staff selection led to rapid expansion. Cochran joined her from Ames, and in 1944 the Institute of Statistics was established on the Raleigh campus. In 1946 it was expanded to an all-university Institute with the establishment of a Department of Mathematical Statistics under Harold Hotelling at Chapel Hill; the Department of Biostatistics was added in 1949.

Links with Fisher were maintained. In 1946 he was visiting professor for six weeks at the Institute's summer session. This was followed by two one-week meetings to invited participants at a Methodist centre in the Smoky Mountains, thus escaping the heat of Raleigh and providing a relaxed environment for the discussion of advanced problems. A similar series of meetings extending over six weeks was held in 1952 at Blue Ridge, which I had the privilege of attending. Many of the participants brought their wives and children, staying in cottages attached to the main hall. The meetings were highly successful both scientifically and socially, with Fisher at his most entertaining, though Gertrude must have had some worrying moments. She even became anxious that Fisher was consuming too much of the very weak beer ferried in from the next county (Blue Ridge was dry) for his delectation in the evenings—I did my best to reassure her. There is an amusing description of the conference with two good photographs of Gertrude in Joan Box's biography of her father.

During and after the second world war universities became increasingly involved in the research problems of government agencies and industrial concerns. A planning group, in which Gertrude played a very active part, was set up to consider how best to provide for these needs in the long term,

This resulted in the foundation in 1959 of the Research Triangle Institute in a large area of pleasant woodland about equidistant from the three North Carolina universities. On her retirement from the Institute of Statistics in 1960 Gertrude became first Head of the Triangle's Statistics Research Division. In her five years there she set it on the path to becoming a major centre of statistical activity. A number of industries have established research branches within the triangle, and the National Institute of Environmental Health Sciences has settled there.

After her second retirement she continued active advisory and consultative work both at home and abroad. She was professionally active up to her death from leukaemia on October 17th, 1978. She was, as is to be expected, the recipient of many honours, including an Honorary Doctor of Science Degree from Iowa State University (Ames) in 1958, election to the National Academy of Sciences in 1975, and establishment of a Gertrude M. Cox Fellowship Fund and the dedication of Cox Hall at North Carolina State University. She was a good person to know, both personally and professionally. She regarded her staff and their children very much as her family, and had their interests very much at heart.

FRANK YATES

JULIUS SHISKIN, 1912-1978

JULIUS (JULIE) SHISKIN, Commissioner of Labor Statistics, United States Department of Labor since 1973, died on October 28th 1978 at the age of 66. He was elected an honorary fellow of the Society in 1973.

Julie Shiskin spent most of his working life as a US Government official. He was head economist of the planning division of the War Production Board from 1942 to 1945, chief economic statistician at the US Bureau of the Census, Washington, from 1947 to 1968 and assistant director in 1968 and 1969. From 1969 to 1973 he was the head of the Statistical Policy Division in the Office of Management and Budget—the central agency with the responsibility for co-ordinating the statistical activities of Government agencies and for promoting the activities of the Federal statistical programme as a whole. He became head of the Bureau of Labor Statistics in August 1973.

He will be remembered best for the contribution he made to economic statistics, particularly the analysis of time series, including the development of indicators for business cycle analysis and computer programs for adjusting series for seasonal variations.

Until the very end of the 1950s, surprisingly little work had been done in the UK Government Statistical Service on developing methods of seasonally adjusting economic series. The few series that were seasonally adjusted were adjusted by using desk calculating machines, in many cases hand-driven ones. None was published. The development under Julie Shiskin's direction at the US Bureau of the Census of computer programs for seasonally adjusting time series rapidly changed all this. The OECD and later on the United Nations Conference of European Statisticians publicized his work and at the same time the computer programs were made available at no cost to national statistical offices and to international organizations. The computer programs provided by the US Bureau of the Census in 1959 remain the basis of most of the seasonally adjusted series compiled by the UK Government Statistical Service today.

Julie Shiskin was the founder of the US Business Conditions Digest having directed its progress from an internal Government report to an established periodical. This, with its sophisticated analysis of time series and business cycle indicators and measures of variability, has set a particularly high standard for publications of economic statistics. His work on business cycle indicators has been followed by the UK Central Statistical Office (in *Economic Trends*) and by a number of statistical offices in other countries.

When Julie Shiskin was head of the Statistical Policy Division in the Office of Management and Budget (the predecessor of the present Office of Federal Statistical Policy and Standards) he did much to emphasize the importance of maintaining the integrity of Government statistics. He was responsible for the publication of release dates of key economic series in advance of publication, which was copied by the Central Statistical Office in November 1970. He attached considerable importance to publishing statistics soon after they were compiled—another principle adopted by the UK Government Statistical Service. He was also concerned with establishing an overall policy for the revision of estimates. He wanted to avoid revisions to figures which were within the margin of error of the figures. In this connection he made use of the I/C ratio which is printed out as a