

STATISTICS IN TRANSITION-new series, December 2012
Vol. 13, No. 3, pp. 617—622

THE HISTORY OF THE MATHEMATICAL STATISTICS GROUP AT THE HORTICULTURAL FACULTY OF THE CENTRAL COLLEGE OF AGRICULTURE IN WARSAW, AND THE BIOMETRIC LABORATORY AT THE MARCELI NENCKI INSTITUTE OF THE WARSAW SCIENTIFIC SOCIETY

Mirosław Krzyśko¹

ABSTRACT

The beginning of education of mathematical statistics at the Central College of Agriculture in Warsaw is connected with Jerzy Neyman, who was a lecturer at the Faculty of Horticulture since 1923. The Mathematical Statistics Group was established in 1928, under his leadership. In the same year he organized a Biometric Laboratory at the Marceli Nencki Institute. This paper introduces the history of these two Groups.

The Biometric Laboratory at the Marceli Nencki Institute of the Warsaw Scientific Society was formed in 1928. The Laboratory's property, consisting of the furnishings of two rooms, two Sunstrand electrical adding machines, two Odhner arithmometers and a set of books, was purchased out of a special grant from the National Culture Fund. Shortage of accommodation, a common problem in pre-war Poland, meant that the Biometric Laboratory had to rely constantly on the hospitality of more affluent institutions. In 1928–29 it was based in two rooms at ul. Nowowiejska 43, made available free of charge by the Central Statistical Office. The same rooms accommodated the Mathematical Statistics Group, also formed in 1928, at the Horticultural Faculty of Warsaw Agricultural College. Both Groups were led by Jerzy Neyman. From 1929 the two Groups used two or three rooms in buildings belonging to the Central College of Agricultural, initially at ul. Miodowa 23, and at ul. Rakowiecka 8 from 1935 onwards.

Apart from Neyman, the Mathematical Statistics Group had four employees. A founding member was Waclaw Pytkowski, who was an assistant of Professor Stefan Moszczeński in the Agricultural Economy Group at Warsaw Agricultural College since 1926, and on 30 June 1931 gained an agricultural engineering

¹ Adam Mickiewicz University, Faculty of Mathematics and Computer Science.

degree with a thesis entitled *Application of partial correlation to studies of the effect of certain factors on gross income on farms*. Between 1930 and 1931 he did practical work at a farm. In 1932 he returned to academic work with the Mathematical Statistics Group. In 1933 he waived his salary and worked as a volunteer assistant until the outbreak of the Second World War. At the same time he held other important posts: from 1 July 1933 he worked as an agricultural inspector and head of the Economics Department of the Polesie Chamber of Agriculture in Brest; from 10 December 1933 to 1 June 1935 he was deputy director of the Polesie Chamber of Agriculture; and on 26 June 1935 he became the director of the Wołyń Chamber of Agriculture in Łuck (Lutsk). He held that post until the start of the war. From 20 May 1936 to 2 July 1937 he chaired the Regional Markets Supervisory Commission in Łuck. In the course of his work at the Mathematical Statistics Group he published four papers.

On 1 November 1930 the Group was joined by Karolina Iwaszkiewicz, who became a deputy junior assistant. She had previously held the same position in the Meteorology and Climatology Group at the College's Agricultural Faculty from 1 December 1929 to 30 September 1930. It is interesting to consider the range of duties entrusted to Karolina Iwaszkiewicz:

"The duties of Miss K. Iwaszkiewicz will include being of assistance to the lecturing professor in carrying out academic, teaching and administrative work.

In her professional capacity Miss K. Iwaszkiewicz will be obliged:

- 1/ to fulfil the instructions of the professor to whom she reports,*
- 2/ at work and outside, to maintain the dignity of her post and avoid anything which might damage the integrity of her post and the trust which it requires,*
- 3/ to forward to the professor all requests, representations and complaints in professional matters,*
- 4/ to obtain the professor's permission for any other paid activity,*
- 5/ to comply with the obligations laid down in the Group's rules.*

In case of a breach by Miss K. Iwaszkiewicz of her accepted obligations, the Academic Senate of the Agricultural College shall be entitled to terminate her employment without notice and without compensation."

On 30 June 1931 she received an engineer's degree in horticulture with a thesis titled *Application of Poisson's Law to the counting of particles of a virus*, written under the supervision of Jerzy Neyman.

From 1 October 1932 to 30 September 1934 she was a senior assistant, and from 1 October 1934 to 28 February 1938 she worked as a lecturer.

On 5 July 1935 she gained the degree of a doctor of horticultural sciences, with a thesis titled *A generalization of the method of multiple correlation to the case where the eliminated variable is non-measurable*.

On 28 February 1938 she was released from her position at her own request, returned to her native Wilno (Vilnius), and from 1 March 1938 began working at the Central Statistical Office of that city's executive board.

During her work at the Mathematical Statistics Group she published 13 papers, of which five were written jointly with Jerzy Neyman.

The third person employed at the Mathematical Statistics Group was Stanisław Kołodziejczyk, who obtained a master's degree in mathematics on 7 October 1930 at Warsaw University's Faculty of Mathematics and Natural Science, with a thesis titled *Testing of a hypothesis on the constancy of probability based on the principles of probability calculations*.

During his studies, in 1929–1930, he worked as a laboratory technician for the Biometric Laboratory of the Nencki Institute. From August 1930 to September 1931 he did military service. On 1 October 1931 he received an annual scholarship from the National Culture Fund, for special studies in probability and mathematical statistics.

From 1 April 1932 to 30 September 1932 he worked at the Mathematical Statistics Group as a volunteer assistant (without pay). On 1 October 1932 he obtained the post of senior assistant, and from 1 October 1934 until the start of the war he was a lecturer. In 1939 he won a doctoral degree in mathematics from Warsaw University, with a thesis titled *On a certain class of statistical hypotheses relating to the method of least squares*. This degree was conferred on 12 June 1939. He published ten papers, including one written jointly with Jerzy Neyman and Karolina Iwaszkiewicz.

On 1 November 1933 the Group was joined by Waclaw Kozakiewicz, a pupil of Professor Stefan Mazurkiewicz, who received a master's degree in mathematics on 7 November 1933 at the Faculty of Mathematics and Natural Sciences at Warsaw University. In 1935 he gained a doctorate at the same faculty. In November 1938 he travelled to France on a scholarship from the National Culture Fund, and was still there when the war broke out. In the years 1933–1938 he published six papers in probability theory.

The Group's members gave lectures and classes in Higher Mathematics, Theory of Statistics, Applications of Statistics to Special Areas, and Methodology of the Design of Field Experiments, within the Agricultural College's horticultural and agricultural faculties. Jerzy Neyman also gave seminars for degree students.

Let us now consider the activities of the Biometric Laboratory at the Marcei Nencki Institute.

There were four classes of researchers at the Institute: heads of research groups, senior and junior research assistants, laboratory technicians, and collaborators. The Institute had a permanent staff of just 20 persons, and a larger number of collaborators. The latter were not employed by the Institute – they were employees of other institutions who carried out research in cooperation with groups at the Institute, making use of their resources and equipment. A stay of a year or two, or even more, at the Institute provided conditions to carry out research which would simply not have been possible at universities and colleges.

The permanent members of the Biometric Laboratory were Jerzy Neyman, its head, Karolina Iwaszkiewicz, initially a technician and later a junior assistant, and

the other technicians Janina Hosiasson, Stanisław Kołodziejczyk, I. Staniewska and M. Stępkowska.

Collaborators included Michał Alpern, Maria Iwaszkiewicz (Karolina's sister), Waław Kozakiewicz, W. Lewitska, Tadeusz Matuszewski, Jan Mydlarski, E. Proskurowska, Józef Przyborowski, Waław Pytkowski and Bogumiła Tokarska-Kozakowa. The full Christian names of some of these persons have not been recorded.

The inseparability of the two Groups in terms of personnel and accommodation meant that their activities were also hard to separate. The Groups were created in order to provide academic centres devoted to the applications of mathematical statistics to a range of problems connected with biology in a broad sense. However, work in this direction could not take place without the simultaneous development of a theory of statistics. For this reason the theory of mathematical statistics was always the main subject of the work done by the Groups, with applications playing a somewhat secondary role. The work in statistical theory mainly related to the theory of verification of statistical hypotheses. Research in this area was carried out in constant contact with the Department of Applied Statistics at the University of London, which led to a number of publications produced jointly with E. S. Pearson. The work relating to the applications of mathematical statistics was not limited to biological problems. Because these were the only two groups in Poland specializing in mathematical statistics, which has an extremely wide range of applications, it was a consequence of everyday life and contacts with other institutions that a number of works were produced relating to areas outside biology. The general direction taken by the work of the two Groups can be seen in the following breakdown of papers published in the years 1928–1935. Out of 50 papers published in that period, 22 concern the theory of statistics, whereas the remainder relate to applications in the fields of agriculture (8), microbiology and serology (8), heredity theory (4), social security (4), economics (3), and engineering (1). There were also three books by Jerzy Neyman. A bibliography of these works, with a description of their contents, was included in the report of the Biometric Laboratory for 1928–1935 (see [2]). In total, in the period from 1928 until the start of the war, the two Groups produced around 80 publications.

The Mathematical Statistics Group together with the Biometric Laboratory collected prints of the papers produced by the two Groups, making them into volumes titled *Statistica*, and sent them on an exchange basis to people and institutions with related interests. Six volumes of *Statistica* appeared successively in 1930, 1932, 1933, 1934, 1935 and 1938. These were sent to 142 institutions, publishers and private individuals, including 67 in Poland, 22 in the USA, 11 in France, 6 in the Soviet Union, 3 in Germany, 3 in Switzerland, 2 in India, 2 in Ireland, 2 in Italy, 2 in Sweden, and one each in Bulgaria, Czechoslovakia, the Philippines, the Netherlands, Japan, Norway and Hungary.

The library of the Biometric Laboratory received, by subscription or in exchange for *Statistica*, the following foreign journals: The Annals of Eugenics,

The Annals of Mathematical Statistics, The Bell System Technical Journal, Eugenical News, International Labour Review, Journal of the American Statistical Association, Journal of the Institute of Actuaries, Journal of the Royal Statistical Society, Sankhyā. The Indian Journal of Statistics, Social Science Abstracts, Bulletin de l'Association des Actuaries Suisses, Bulletin de la Société Mathématique de France, Archiv für Rassen- und Gesellschafts- Biologie, Handbuch der Vererbungswissenschaft, Zeitschrift für Angewandte Mathematik und Mechanik, Zeitschrift für Induktive Abstammungs- und Vererbungslehre, and Giornale dell' Istituto Italiano degli Attuari. By the end of 1935 the library of the Biometric Laboratory held a total of 1048 volumes.

Due to his continued lack of a permanent post at any university or college in Poland, in 1934 Jerzy Neyman took up the position of lecturer at University College, London. From then on he divided his time between London and Warsaw. The circumstances of his taking up employment in London are described by Klonecki and Zonn (see [3]):

“His social and material situation remained nonetheless difficult, chiefly due to Neyman’s engagement in the political life of contemporary Poland. He took part in meetings of the anticlerical Polish Association of Free Thought. At meetings of that association Neyman spoke on the subject of the expenditure incurred by the Polish state on maintaining the Catholic Church within the country. Based on Neyman’s report, someone else printed an article in the journal Racjonalista under the title “The Telling Numbers”. It should be noted that Neyman had taken all of his numerical data from publicly available official documents concerning the national budget. However, these activities made it difficult for Neyman to gain further promotion, and so when he received an invitation to London in 1934, he left Poland. Thus began Neyman’s life as an emigrant.”

Starting from the 1934–35 academic year, Neyman’s classes were taken over by Karolina Iwaszkiewicz and Stanisław Kołodziejczyk. Over time Neyman’s links with Poland became weaker, and in 1936 he left Poland permanently. In the 1936–37 academic year the position of head of the Mathematical Statistics Group at the Horticultural Faculty of Warsaw Agricultural College was given to Dr Karolina Iwaszkiewicz, and later its supervisor became Professor Michał Korczewski, the dean of the faculty. At the end of 1937 the activity of the Biometric Laboratory was suspended, and all of its members left the Institute.

Over the nine years from 1928 to 1936, that is from his arrival from a secondment in Paris until he left for England, Jerzy Neyman worked intensively on the foundations of statistics. This was one of the most creative periods in his academic career, and the results which he obtained in those years in Poland (he did a lot of his research work at that time at Mądralin near Otwock) set the course for the further development of statistics over the next decades. With his pupils he presented numerous works, both theoretical and relating to applications of statistical methods in agriculture, microbiology, anthropology, genetics, economics and sociology.

REFERENCES

- Archives of Warsaw University of Life Sciences-SGGW (1936). *Instytut imienia Nenckiego Towarzystwa Naukowego Warszawskiego. 1928-1935. Organizacja-Działalność-Środki*, published by the Institute, Warsaw.
- KLONECKI, W. and ZONN, W. (1973). *Jerzy Sława-Neyman*, Roczniki Polskiego Towarzystwa Matematycznego. Series II: Wiadomości Matematyczne XVI, 55–70.
- KUŹNICKI, L. (2008) *Instytut Biologii Doświadczalnej im. Marcelego Nenckiego. Historia i Teraźniejszość, Tom I, 1918-2007*, PAN M. Nencki Institute of Experimental Biology, Warsaw.
- LAUDAŃSKI, Z. and MĄDRY, W., *Historia Katedry Doświadczalnictwa i Bioinformatyki*,
<http://agrobiol.sggw.waw.pl/biometria/pages/strona-glowna/bhistoriab.php>