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Karl John Holzinger

The Psychometric Society suffered a great loss with the sudden death of one of its former presidents—Karl John Holzinger—who was stricken with a heart attack at his home on the morning of January 15, 1954, at the age of 61.

Out of a deep personal sense of loss the writer was prompted to set down a few words about Mr. Holzinger. My first acquaintance with Professor Holzinger goes back 20 years, when I was a student in his statistics class. I had the feeling, undoubtedly shared by hundreds of his former students, that he was so sincere in trying to "get across" to the student and his manner so kind, humorous, and gentle, that each student made an extra effort to grasp what he was teaching. His pedagogical ability was supported by a sound scientific background and philosophy. He commanded my immediate respect and admiration. As our professional interactions increased and friendship developed during the next seven years of close working relationship, these early impressions were strengthened. His many wonderful traits as a teacher and friend appeared again and again, whether at serious seminars on factor analysis or, in lighter moments, on the tennis court or at the bridge table.

Mr. Holzinger's publications in statistics and statistical applications in education and psychology leave an enviable record for posterity. Although these publications are important contributions to scientific knowledge, it was his influence upon the many students and assistants which he considered his stake in the future.

Mr. Holzinger spent almost his entire professional life on the campus of the University of Chicago, where he was in the Department of Education for 32 years. He received the Ph.D. summa cum laude in mathematics and education from the University of Chicago in 1922, and shortly thereafter he went to the University of London to study statistical theory with Karl Pearson and statistical applications with Charles Spearman. This experience left its imprint on Professor Holzinger, and was reflected in his teaching, research, and writings. The only other times that he was away from the University of Chicago was for service in the Psychological Corps of the United States Army during World War I and, in recent summers, as a visiting professor at the University of California at Berkeley.

Professor Holzinger was recognized internationally for his contributions to the field of psychological statistics. He was honored professionally by being elected president of the Psychometric Society in 1940 and vice-president of the American Statistical Association in 1933; he was awarded the prize of the Education Research Association in 1941; and he served on the Editorial Board of *Psychometrika* from 1937 to 1948 and was joint editor of the *Journal of Educational Psychology* from 1949 to the time of his death.

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While he is best known for his many contributions to factor analysis, dating back thirty years to his first paper with Spearman on "Sampling Errors of Tetrad Differences," his research and applications of statistical theory span a much broader field. He is responsible for the statistical theory in two books: *Twins* (with Freeman and Newman) and *Influence of Environment on Intelligence, Achievement, and Conduct* (with Freeman). Of his many papers, monographs, and books on factor analysis mention might be made of two principal works in this area: *Factor Analysis* (with Harman) and *Preliminary Reports on Spearman-Holzinger Unitary Trait Study*, Numbers 1–9 (in which his Bi-factor Theory is first presented). Finally, his writings included contributions to the pedagogical field, by way of textbooks and computational tables and aids. His *Statistical Methods* is well known, and we hope that a manuscript tentatively entitled, "Primer of Statistical Logic," on which he was working at the time of his death, may soon be published.

As regards Holzinger's work in factor analysis, it must be said that, above all, he was recognized as the principal proponent of the Spearman Two-Factor Theory in this country. He admired Spearman's monumental work in developing a psychological theory involving a single general factor "*g*" and a number of specific factors "*s*". But, he was even more impressed by the sound statistical model for this theory, and worked very closely with Spearman on these statistical problems. However, as time went on, he realized some of the inadequacies of the Two-Factor Theory to deal with the complex psychological test batteries that came into being during the 1930's. In developing a broader theory to cope with the greater demand, he nevertheless was guided by Spearman's earlier work, and in presenting his new Bi-factor Theory he claimed no more for it than an extension of Spearman's work. It was that—but it was also an alternative multiple factor theory. Later he did considerable work on the comparison of various factorial solutions, especially the relationship between his Bi-factor Theory and Thurstone's Multiple-Factor Theory. In the 1940's he had swung even more in the direction of oblique multiple-factor analysis; and, under the characteristically unpretentious title, "The Simple Method of Factor Analysis," he was among the first to develop a multiple group method of analysis with simple computing procedures.

Karl John Holzinger will long be remembered for his many contributions to factor analysis and related statistical work. Like his father before him, he was a great teacher with whom to study and a most stimulating scholar with whom to work, because he seemed to get such great enjoyment out of his teaching and research. He was a great, yet modest, man and while his later years were saddened by the untimely death of his son, his life was rounded out with happy family relationships, wide and friendly associations, and well deserved professional success.

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