

AN HISTORICAL NOTE

Opposite is a reproduction of William Stephenson's 1935 letter (reproduced with the kind permission of the editor of *Nature*) announcing a new factor technique, which became the psychometric foundation of what is now known as Q methodology.

Actually, it was Godfrey H. Thomson who first suggested the letter *q* to stand for the correlation between persons, in his paper entitled "On complete families of correlation coefficients, and their tendency to zero tetrad-differences: Including a statement of the sampling theory of abilities," *British Journal of Psychology (General Section)*, 1935, 26, 63-92. After discussing what is now known as R method, Thomson continued:

...I would like to call attention to another matrix obtainable by standardizing the matrix of raw scores by columns [persons] instead of, as here, by rows [tests]. If we call it in that case Y instead of Z, then we have

$$Y'Y = Q \quad \dots\dots (17),$$

where Q is a *p*-square matrix of *q*-correlations, each correlation being between *two persons*, not between two tests [p. 75].

Although Thomson's paper appeared in July 1935, whereas Stephenson's letter appeared in August, the June 28 postmark of the latter indicates that Stephenson wrote it before he had had the opportunity to read Thomson's paper.

The distinction of importance is not temporal, however, but methodological. Thomson was concerned that the pattern of scores for a person (for a number of different tests) lacked a common unit of measurement, i.e.,

...I have to be able to say that a person does

better in a test i than he does in a test j , and this raises hosts of difficulties, the consideration of which, however, will make anyone who studies this matter rather careful about how he talks about scores in tests without facing the question of what units are being studied... [Thomson, 1935, p. 76].

Is an IQ score of 110 greater than a reading stanine of 8 when differing units and abilities are at issue? Thomson was pessimistic.

Stephenson's letter, on the other hand, radiates optimism since it contains a solution to Thomson's dilemma: This new "inverted" technique (an unfortunate label*) was one in which tests, traits, pictures, or other materials were to be "measured or scaled by m individuals." Individuals were not to *receive* scores on objective tests, as Thomson assumed, but were to *assign* scores by comparing the "tests" with one another. One could now be certain that a person liked test i better than test j (to return to Thomson's problem) since different scores were attached to them which reflected this preference. All scores therefore reflected a common underlying numerical scheme, e.g., "like vs. dislike from my point of view."

The correlation of persons (of the R-transpose variety to which Thomson was drawing attention) was not a new idea even in 1935, but Stephenson's version was innovative. On the other hand, it was not a difficult idea to comprehend--professors, after all, had been rank-ordering tests for years!--and so one cannot help but wonder why Q caused so much commotion. Perhaps it was because it was so simple, a basic dis-

*Statisticians who are "in the know" are quick to point out that Q is not the inverse of R, but its transpose. It is, of course, neither. By "inverse," Stephenson meant nothing statistical, but merely wished to point out that the roles of tests and persons were being reversed.

inction right there under the noses of the world's foremost psychometricians, any of whom could have grasped and advanced it. That none did perhaps explains in part why none could accept it when it was finally grasped and advanced, and forcefully so.

H.M. Schey, in his paper "Einstein's rejection of quantum theory: A personal motive" (*American Imago*, 1971, 28, 187-190), suggests that Einstein's opposition to quantum theory may have been a reflection of his denial that he wished it to be his own theory, and it might be prudent for a future historian to consider the role of envy in the patterns of acceptance and rejection which accompanied the introduction of Q technique and its methodology.

As a sidelight, Karl Pearson's letter (on the same page with Stephenson's) reveals the period in which Q was being innovated as a theoretically and conceptually rich one. Pearson was complaining about the misuse of chi square, a method which he had invented. Stephenson, of course, would later have occasion to register complaints of his own along similar lines.

In this issue (43 years later)... William Stephenson argues that Public Science can only be healthy if it attends in an objective manner to its subjective substructure. Drawing on Sir Isaac Newton's unpublished rule of reasoning--and including a Q study on hypertension to provide substance--Stephenson doubts Holton's claim that personal involvements cancel out, leaving only facts.

Larry Baas' paper reveals the symbolic character of the Constitution (as determined from a large-scale Q study), and shows how benevolent imagery has been eroded, particularly by the events of Watergate. An intensive study of Constitutional imagery, also by Baas, is scheduled to appear in the February 1979 issue of *American Journal of Political Science*.