The Place of Statistics in the University

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The teaching of statistics in American colleges and universities, which has for the most part been a development since the first world war and has now reached large proportions, presents a number of unsatisfactory features. Courses in statistical methods are taught in various departments without coordination or intercommunication. These courses cover what is to a large extent the same material, but with many variations in the selection of subjects according to the ideas and abilities of individual instructors, and with illustrative examples drawn in each case from material pertaining to the department in which the course is taught. Thus a student desiring to learn more about statistics than he can obtain in one department must, in taking courses in other departments, repeat a great deal of what he has previously covered. There is a plethora of elementary courses, a dearth of advanced ones. Some departments have excellent statistical laboratories which they reserve for the use of their own students, each with an attendant to keep others away, while other departments have none. Some classes in elementary statistics are too large and some too small, with no one in a position to equalize the sections as between different departments.

The library situation is confused. Books on statistical methods are cataloged and shelved under Sociology, Economics, Business, Psychology, Zoology, Botany, Engineering, and Medicine. Books on probability are divided among Philosophy, Mathematics, Physics, and Chemistry. Books on the method of least squares are for the most part divided among Mathematics, Astronomy, and Civil Engineering, though some get into the Economics, Geology, and Physics reading rooms. Works on the analysis of variance and design of experiments are apt to be concentrated under Agriculture, while methods of approximate evaluation of multiple integrals and similar purely mathematical subjects of use in statistics are, at least in one of our largest universities, to be found only in the library of Biology.

These are minor nuisances. The major evil is that those teaching statistical methods are all too often not specialists in the subject. Their original selection was seldom on the basis of scholarship in this field, they are not encouraged to make advanced studies in it, and their environment is such as to draw their attention in every direction except to the central truths and problems of their science. Frequently they lack the knowledge of mathematics necessary to begin to read the more serious literature of the subject they are teaching. Many have been utterly unable to keep up with the rapid progress which has been taking place in statistical methods and theory, progress which affects even the most elementary things to be taught. There results a widespread teaching of wrong theories and inefficient methods. Students are sent to the government service and to industrial and commercial statistical positions equipped with the skill that results from careful drilling in methods that ought never to be used. Some of these same students are encouraged and assisted to become college and university teachers of statistics without ever making thoroughgoing studies of the fundamentals of the subject, or exhibiting any power of making original contributions to it, or studying any graduate mathematics. Through the method of selection of teachers in general use, and through textbooks written by individuals of this type, there is a perpetuation of obsolete ideas and unsound methods.

All this does not mean that any considerable number of those teaching statistics are unworthy or objectionable members of the academic community. Many, indeed, are of very superior intellect, upright character, personal charm, and undoubted teaching ability. Some are making creative contributions to other subjects. The only trouble is that they are teaching a subject in which they are not specialists, and which progresses so fast that only specialists can keep up with it.

The chief reasons for the extensive teaching of statistical method by those who are not specialists in it appear to be the following:

1. The rapid growth of the subject and multiplication of its applications, creating a very large and very urgent demand for teaching it that could not be met immediately by the small existing number of scholars specializing in statistical method. This difficulty is aggravated by the paucity of university facilities for