



**In Biology.** Taxonomy is a development of systematic botany and systematic zoology. Historically, these are the oldest of the biologic sciences. Their original functions were those of naming, describing, and classifying species and the higher categories. Modern taxonomy still has those same functions, but its techniques are very different (Ahlstrom 1937, Crampton 1925, Dice 1932, Dobzhansky 1937, 1941, Erickson 1941, Hile 1937, Hubbs and Miller 1942, Hubbs and Johnson 1943, Huxley 1940, Kinsey 1942, Mayr 1942, Miller 1941). Since the differences between the present study and previous work on human sex behavior are essentially the same as the differences between modern taxonomy and the older systematics, it will be profitable to compare the two.

Modern taxonomy is the product of an increasing awareness among biologists of the uniqueness of individuals, and of the wide range of variation which may occur in any population of individuals. The taxonomist is, therefore, primarily concerned with the measurement of variation in series of individuals which stand as representatives of the species in which he is interested.

In order to have his sample representative the taxonomist must deal with much larger series than the older systematist ever thought of handling. Where the systematist used a single individual or a few individuals as the bases of his description and of his understanding of a species, the taxonomist undertakes population sampling on such a scale as may involve hundreds of individuals from each locality, and tens of thousands of individuals from the species as a whole. If individuals are collected in a fashion which eliminates all bias in their choosing, and in a fashion which includes material from every type of habitat and from the whole range of the species, it should be possible to secure a sample which, after measurement and classification, will indicate the frequency with which each type of variant occurs in each local population, or in the species as a whole. If the sample is adequate, the generalizations should apply not only to the individuals which were actually measured, but to those which were never collected and which were never measured at all. Obviously, the correctness of such an extension of the observed data depends upon the size of the sample, and upon the quality of the sample; and the capacity of the taxonomist is to be measured by the skill he demonstrates in choosing and securing that sample. The next two chapters will contain a description of the techniques by which the material for the present study has been obtained.

Beyond describing the groups involved, the taxonomist may also analyze some of the factors which account for differences between the individuals and between the populations of individuals which he is studying. These analyses depend upon comparisons of groups with backgrounds which are similar, except for some one item which may be identified as the source of the differences between the groups. This is the sort of analysis which an

experimentalist makes when he compares an operated and a control group of animals. The experimentalist creates the backgrounds and controls the environmental factors which are the suspected agents of his results. The taxonomist finds the different backgrounds where they are already established in nature and, if his investigation is accurate, can reason as the experimentalist does about causal factors.

Descriptive taxonomy provides an over-all survey; the experimental techniques are better suited to the examination of ultimate details. The taxonomist charts the paths which specialists may subsequently follow. It is the function of the taxonomist to show the magnitude of the whole group which he has studied, so specialists will know how large an order must be satisfied if their generalizations are to apply to any significant portion of that group.

**In Applied and Social Sciences.** Medicine, psychiatry, psychology, sociology, economics, anthropology, and the other social sciences are, after all, faced with the same problems which have confronted biologists in their attempts to describe and classify basic phenomena. They, similarly, need to secure such an over-all understanding of their one, highly variable animal, the human, as will "show the magnitude of the whole group" and make it clear "how large an order must be satisfied if their generalizations are to apply to any significant portion of that group."

Unfortunately, it has not always been realized that problems in social fields involve the understanding of a whole species. Much of the publication in these fields is concerned with observations on a few individuals from whom generalizations are too often extended to any and to all other segments of the population. Observations on children, on senescent adults, on social groups, on gangs, or on whole towns are usually observations on *particular* groups, although they are presented as typical of life in all of America. Even when the data are experimentally derived, as in medicine and more recently in psychology, the problem of understanding the whole of the human species is still present. Experiments, whether operations, drug injections, physiologic tests, or psychologic manipulations, are usually limited to a few individuals when, in actuality, they should include persons of both sexes, of all ages, and from all sorts of socio-economic, educational, and religious backgrounds, if the conclusions are to be applied to the human species in general.

College students, of college age, mostly from middle-class and urban homes—often with the sex unrecorded—are the subjects for a high proportion of the observations and experiments of academic investigators. No caution is given the reader that individuals of other ages, with different educational backgrounds and different social origins, might react differently to the same sorts of experimental situations. Even among

psychologists, the apparatus used in the experiment may be chosen with more care than the human subjects of the investigation.

In the medical, psychologic, and social sciences, there are a number of studies of single individuals who are described in elaborate detail (*e.g.*, Allport 1942, Blos 1941, Brown 1937, Carlson 1941, Conwell 1937, Hillyer 1927, Hoopes 1939, "Inmate" 1932, Johnson 1930, Judge Baker Fnd. 1922, Karpman 1935, 1944, Kellogg 1933, Prince 1905, Rogers 1942, Shaw 1930, Thomas and Znaniecki 1918–1920, Wright 1945). It is implied that the observations or the therapeutic techniques used in the one case are applicable to other individuals in the general population. Psychiatrists and psychoanalysts have been particularly involved in such publication, and the anthropologists have led in this field (*e.g.*, Barton 1938, Beers 1908, Dyk 1938, Ford 1941, Hatt 1931, Landes 1938, Linderman 1930, 1932, McGraw 1935, Radin 1920, 1926, Simmons 1942, Spott and Kroeber 1942, Underhill 1936, Washbourne 1940, etc.). The idea is old. Linnaeus extolled the lone moss which was worth a life-time of study, and Tennyson thought of the flower in the crannied wall as the key to the secrets of the universe. Such detailed studies of single individuals have often represented a certain high degree of industry and scholarship, but they are dangerous as sources of generalizations about larger segments of the population. Like descriptive systematics at its worst, such detailed studies of individual cases are the antitheses of analyses based on large and statistically well selected samples of the sort the modern taxonomist employs.

There are sociologic studies (*e.g.*, Burgess and Cottrell 1939), which appear statistical because they carefully define the group which was studied without, however, making any effort to select a sample which would be homogeneous and representative of any larger portion of the total population. Obviously, conclusions based on such studies are applicable only to the particular sample which was available to the particular investigator, and it is practically certain that no one will ever again meet, at any other time, in any other place, another group of persons similarly constituted.

Sometimes social scientists hobnob as tourists in some social milieu sufficiently removed from their own to make it possible for them to acquire "impressions" and "hunches" about "social patterns" and "motivations of behavior" in whole cultures. This method has the merit of requiring a minimum of time—much less than the public opinion polls or the taxonomists need for arriving at their generalizations. Nevertheless, to some students the day seems overdue when scientists studying human material will forsake barbershop techniques and attempt to secure some taxonomic understanding of the human population.

Some persons are appalled at the idea of having to undertake a large-scale coverage of thousands of individual cases before they are allowed to generalize about the whole. Contacts with the statistics of small samples

have provided rationalizations for some of this inertia; but no statistical techniques can make a small sample represent any type of individual which was not present in the original body of data.

In the past dozen years, economic surveys, agricultural surveys, the public opinion polls, and a research group in the Census Bureau (McNemar 1940, 1946, Gallup and Rae 1940, Blankenship 1943, Gallup 1944, Cantril 1944) have shown the way in which a human population must be analyzed before there can be any understanding of any large segment of that population. Developed without benefit of the biologists' experience with taxonomy, the public opinion techniques are, nevertheless, an illustration of taxonomic procedure. During the recent war, problems of sampling in the field of social problems received increased attention from the statisticians and the biostatisticians. Public health surveys are now utilizing modern methods of sampling. With increasing frequency the business world has learned to depend upon analyses of consumer reactions in the commercial field. The predictions in such surveys usually lie within 1 to 5 per cent of the subsequent performance (Katz 1941, Gallup 1944). In contrast, we should guess that many of the **generalizations** coming from the traditional studies in the social sciences might prove erroneous in something between 20 and 90 per cent of the cases, if one attempted to apply them to any considerable portion of the population. It is unfortunate that the products of academic studies are not more often put to the dollars and cents tests which have provided the incentives for increasingly better techniques in economic and public opinion surveying.

**Statistical Basis.** Modern taxonomy is statistical in its approach. In many quarters there is an **honest distrust of sampling** techniques because there is a distrust of all **statistical procedures**. There is a widespread feeling that statistics are cold **and that they cannot measure human emotions** which, after all, are involved in all sexual activities as well as in many other human problems. It is objected that statistics can deal with incidences and frequencies and provide means for calculating average individuals, but that average individuals do not really exist, and that measurements of such hypothetical individuals provide no insight into the particular persons with whom the clinician must deal. Such objections involve, however, a misunderstanding of the utility of a statistical approach. It is, precisely, the function of a population analysis **to help in the understanding of particular individuals by showing their relation to the remainder of the group**. Given the range of variation, the mode, the mean, the median, and the shape of the frequency distribution for the whole group, the clinician can determine the averageness or uniqueness of any particular person, and comprehend the extent to which generalizations developed for the whole group may be applied to any particular case (see Clinical Tables, Chapter 23). Without such a background, each individual becomes unique and unexplainable except through an elaborate investigation of him as an

isolated entity. On the other hand, if there are adequate data on the group, a major portion of the work involved in understanding a particular individual is thereby eliminated, even though it is true that he may still be so unique that he will need some special study.

The possession of some "statistical sense" would seem to be a fundamental requirement for anyone attempting to investigate any species, including the human. By "statistical sense" we refer to one's capacity to distinguish the specific from the universal and to recognize the difference between a phenomenon which is common and one which is rare. One shows a statistical sense when he is interested in knowing how often a particular thing is true, and how often something different might be so—in short, what the incidence of each variant is in the population as a whole. The investigator who is satisfied to report a single set of observations is lacking in a statistical sense. The clinician who has made a dozen tests of a particular therapeutic technique, and reports them as though they were applicable to anybody and everybody, is no scientist, for he lacks a statistical sense. Every scientist needs to cultivate his ability to distinguish between facts that are known to be true only for particular individuals, and facts which are known in such variety, for so many different kinds of individuals, that they may be added up to an understanding of a whole population.

The present study should provide an instance of the taxonomic method applied to a problem that lies primarily in the field of human behavior and sociology. If the results of this investigation seem significant, the study will have been justified not only because of its findings but, what may prove to be of as much import, because of its demonstration of a method that can be used in other fields of research on human problems.

#### STATUS OF PREVIOUS SEX STUDIES

Although we have said that scientists have largely avoided investigations of human sexuality, leaving this one of the most poorly explored fields in biology, psychology, or sociology, it should be emphasized that there is no aspect of human behavior about which there has been more thought, more talk, and more books written. From the dawn of human history, from the drawings left by primitive peoples, on through the developments of all civilizations, ancient, classic, Oriental, medieval, and modern, men have left a record of their sexual activities and their thinking about sex. The printed literature is tremendous, and the other material is inexhaustible. For bulk, the literature cannot be surpassed in many other fields; for scholarship, esthetic merit, or scientific validity it is of such mixed quality that it is difficult to separate the kernel from the chaff, and still more difficult to maintain any perspective during its perusal. It is, at once, an interesting reflection of man's absorbing interest in sex, and his astounding ignorance of it; his desire to know and his unwillingness to face the facts; his respect for an objective, scientific approach to the problems