

terdämmerung (The Twilight of the Gods), was very popular in this period.

Recently, the term "midnight cowboy," from James Leo Herlihy's 1965 book and the subsequent film, has had some currency. (For reasons not altogether clear, much homosexual social life begins only after ten or eleven in the evening.) Presumably real cowboys have to be up too early in the morning to be out until midnight.

TWIN STUDIES

The study of twins is a useful tool for determining if a given trait or condition has a genetic component. Inasmuch as the sophistication of these studies has increased markedly over the past few decades, their value is increasing. Scientists have learned that such studies should be carefully conducted, and they are normally a helpful, if somewhat unexciting, discipline.

Yet peace and quiet did not attend the first attempts to conduct twin studies in homosexual behavior. Early research (Kallmann) indicated a very high concordance for homosexuality, and these results provoked cries of "Nazi" and "fascist" from the opposite camp, which was convinced that homosexuality was caused by the environment, specifically child-rearing practices. Clearly, ideology was getting entangled with science during these early years (and not for the first time).

So these twin studies must be approached with some care, and one must not automatically expect careful and impartial research in what is still, for many, an essentially contested area. "Concordance" is the degree to which two people share the same trait. John and Peter, not related, may be concordant for blue eyes, if they both have blue eyes. It is easy to determine concordance for eye color. But homosexual behavior is a more complex phenomenon. It may have several distinct subtypes (the effeminate, the

pederast, the loving comrade, and so on). People may also lie about the facts, for obvious reasons.

Despite these problems, it is difficult to read the twin literature on homosexuality without some surprise. "Fraternal" twins come from two sperm and two eggs, and are therefore no more closely related than any other siblings, while "identical" twins come from one sperm and one egg (the egg dividing after fertilization). Recent research has shown that these "identical" twins may not be complete twins in their gene complements (due to unknown factors in the egg-splitting process). One would expect no concordance at all for either fraternal or identical twins, if the strong environmentalist argument were to hold.

But that is not the case. There is no (or very little) concordance for fraternal twins. For identical twins, the concordance rate is approximately eighty or ninety percent, or even higher. This evidence would seem to suggest that people are simply born homosexual, just as they are born with green or blue eyes.

Yet the fact that these people seem to be born with a genetic predisposition to homosexuality carries no necessary implication that all homosexuality results from genetic factors. This may ultimately prove to be the case, but the twin studies do not prove it in and of themselves. In addition, a high concordance rate for homosexuality among identical twins does not mean that such twins are more (or less) likely to be homosexual than anyone else. Finally, there is no evidence at all in the twin studies which indicates that a particular subtype (for example, the effeminate homosexual) is genetically dominant at the expense of other homosexual subtypes.

The twin evidence presents some problems for future research. First, the acid test is the case of identical twins raised apart. There are not yet enough such twin-pairs in the literature. (It would also seem mandatory to obtain more longitudinal data on twin pairs.) Second, there is no

clear idea of how this genetic component interacts with the surrounding environment to produce the fairly wide spectrum of human social behavior recorded by anthropology and history. Third, much larger twin studies need to be performed: the total periodical literature covers under a hundred pairs. Fourth, lesbianism and male homosexuality may not be the same sort of thing at all, if early research (Eckert et al.) holds up.

BIBLIOGRAPHY. E. D. Eckert, T. J. Bouchard, J. Bohlen, and L. L. Heston, "Homosexuality in Monozygotic Twins Reared Apart," *British Journal of Psychiatry*, 148 (1986), 421-25; Franz J. Kallmann, "Comparative Twin Study on the Genetic Aspects of Male Homosexuality," *Journal of Nervous and Mental Disease*, 115, (1952), 283-98; Geoff Puterbaugh, "Born Gay? Hand Preference and Sex Preference," *Cabirion*, 10 (1984), 12-18.

Geoff Puterbaugh

TYOLOGY OF HOMOSEXUALITY

A valuable conceptual tool in seeking to understand a wide-ranging phenomenon or related group of phenomena which show both commonality and diversity, typology is the arrangement or classification of the elements under study so as to highlight both points of similarity and points of difference. Typology traces its roots back to the biologist's taxonomy, or classification of species, a practice which stems ultimately from Aristotle and his school.

In 1922 the great sociologist Max Weber applied the notion of "ideal types" to social behavior. These types were characterized as hypothetical constructs made up of the salient features or elements of a social phenomenon, or generalized concept, in order to facilitate comparison and classification of what is found in operation. Psychology, linguistics, anthropology, the history of science, comparative religion, and other disciplines have since made considerable use of such tools, often called "models" or "paradigms."

Once a typology has been constructed, it becomes an aid in the interpretation of a variety of concrete phenomena, but it can be misused to distort reality, as the features selected to compose them may acquire a distorted importance or concreteness, leading to the neglect of other factors. Hence typologies must be continually subjected to reexamination as new data become available, and revised as the understanding of the phenomena becomes more sophisticated.

Typologies are most helpful in preventing the ascription of traits in one subgroup of the phenomena under study to other subgroups where they may not belong, and in underlining points of commonality which may disclose historical influences or causal factors that otherwise might not have suggested themselves to the investigator.

In natural science, the term "paradigm" has been used since Thomas S. Kuhn's widely read book *The Structure of Scientific Revolutions* (1962) to designate the prevailing system of understanding phenomena which guides scientific theorization and experimentation, and which is held to be the most useful way of explaining the universe, or a part of it, until that paradigm is eventually overthrown by new data and replaced by a newer paradigm. As Kuhn has pointed out, paradigms may function without the conscious adherence of those who employ them, and in the broadest sense they often form part of the unvoiced inner structure of human existence.

Popular Paradigms and Homosexuality. A somewhat different use of typologies may refer to the models or conceptual schemes held up to groups of people or the public at large in order to assimilate difficult or strange phenomena. When these models substantially guide the concepts and behaviors of the people most involved with them, they take on a normative reality which goes far beyond the theoretical utility of the academic model. Thus, it is one thing for the anthro-