BEHAVIOR

The mean streets of Mannheim

It may be impossible to control the circumstances of one's birth, but choosing the place and time of death is another matter. The most famous suicide site, of course, is the Golden Gate Bridge. But a study sponsored by the German Research Institute and the Central Institute of Psychic Health indicates that suicides tend to occur not only in certain cities but in specific streets and neighborhoods.

The research, conducted by Rainer Welz in the city of Mannheim, examined suicide statistics in 22 city areas and 78 small districts. Welz reports it was possible to identify 71 streets in which 20 or more suicide attempts per 1,000 inhabitants had occurred and where 14.5 percent of all attempted suicides took place from 1966 to 1975.

Streets where an attempted rate was more than 25 per 1,000, while containing only 1.9 percent of Mannheim's population, accounted for 7.6 percent of all attempts. And six streets having a rate of more than 40 attempts per 1,000 persons accounted for 0.4 percent of all residents and 2.5 percent of the suicide attempts. On the street with the highest rate of suicide — 68.1 attempts per 1,000 residents — every 14th resident of the street had attempted to kill himself or herself between 1966 and 1975.

Welz says there are, socioeconomically, two basic types of streets where residents are prone to suicide:

- The "middle class residential area" with small proportions of working class and young persons but a distinctly high percentage of elderly people. Such streets also are characterized by a high degree of "social disintegration," with residents who are divorced, living alone or missing a spouse or other family member.
- The "lower social strata residential area," with a high percentage of working class persons and a predominance of dilapidated dwellings.

Welz says there is no definitive explanation for the high frequency of attempted suicides on just a few streets in Mannheim. But he suggests that "suicide attempts in such streets are more probable when similar attempts have been made there previously, and that there are certain 'infectious media' in these streets as well as social influence processes in respect to suicidal behavior."

Cheating when it counts

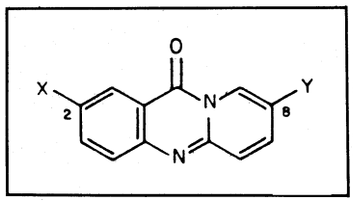
Baseball, hot dogs, apple pie and ... cheating? It may not be considered a traditional part of the American way of life, but cheating may be far more prevalent than people suspect, suggests a study performed by the University of Michigan Institute for Social Research. In a study of 218 male students at a midwestern university, researcher Lynn R. Kahle found that 46 percent of the subjects were willing to cheat on a test when given the opportunity.

Moreover, students who cheat tend to do so "in situations which are personally important to them," according to the study, to be published in the January JOURNAL OF PERSONALITY AND SOCIAL PSYCHOLOGY. Each of the subjects was administered a test of vocabulary, reading comprehension and a self-selected third test — all given on "secret, pressure-sensitive paper" after which the students were given the opportunity (surreptitiously) to cheat by changing and correcting answers.

Kahle reports that people were more likely to cheat on the test they preferred (vocabulary or reading comprehension). This suggests, she says, "that motivation is enhanced when people are in situations consistent with the type of person they are.... They do manipulate their environment to make it more compatible with their own preferences, desires, needs, traits, attitudes and characteristics."

CHEMISTRY

Orally active antiallergy agents



J. of Medicinal Chemistry

Since bronchial asthma victims may have impaired ability to inhale antiallergy medicine deeply enough into the lungs, the search is on for potent orally active compounds. Now, Jefferson W. Tilley and his colleagues at Hoffman-La Roche, Inc., in Nutley, N.J., report in the January JOURNAL OF MEDICINAL CHEMISTRY their part of the search.

Tilley and his colleagues tested in rats a series of three-ringed compounds. One of the compounds, which ranks among the most orally active antiallergy agents yet reported, has an isopropyl group (C_3H_7) for the "Y" shown in the illustration and a carboxyl group (COOH) for the "X."

Researchers have observed that most successful orally active antiallergy agents have at least one carbon ring and one carboxyl group. Still, the mechanism by which certain compounds can effectively inhibit allergic response after oral administration is unclear. So, researchers searching for orally active antiallergy agents continue to play a game of substitution, attaching different chemical groups to a carbon ring in each new experiment, hoping to find one that will maximize antiallergy activity.

Fatty acids: Across the great divide

The study of membranes is a relatively primitive area of science: Researchers are just now developing the technology needed to look at membrane processes on the Angstrom (10^8 Angstroms = 1 centimeter) scale. Now, Louis C. Smith and his colleagues of the Methodist Hospital in Houston, Tex., report in the Jan. 8 BIOCHEMISTRY their study of a particular membrane process: the transfer of fatty acids from the bloodstream to surrounding body tissue.

Fatty acids, long hydrocarbon chains ending with an acid group, are an important source of food energy and also the building blocks for other cellular structures. Essential fatty acids, which cannot be made by mammals, are derived from food sources. Fatty acids travel in the bloodstream in groups of three as part of molecules called triglycerides, which in turn travel as part of protein-coated structures. So, when the fatty acids are released from the triglycerides, they must cross two membranes — that of the protein-coated structure and of the artery lining — to reach the body's tissues.

Smith and his colleagues concentrated on one aspect of this complex transfer — the movement of the fatty acid immediately after it is released from a triglyceride. The researchers constructed artificial membranes to simulate the protein-coated structures that carry triglycerides. Then they studied the movement of fluorescent fatty acids across these membranes. Smith and his colleagues found that the rate of fatty acid movement could be altered by changing certain properties — pH, for example — of the water immediately surrounding the membrane.

The breakdown of triglycerides to fatty acids is a feedback mechanism: If the fatty acids fail to move across the membrane of the artery lining and accumulate in the bloodstream, further triglyceride breakdown will be inhibited. So, determining the mechanism and rate of fatty acid transfer may have implications for the study of certain pathological conditions — diabetes, for example — characterized by excess triglycerides in the blood.

Since the membrane is such an intricate part of biological systems, the applications of membrane research are numerous. "The whole basis of the higher life processes is the compartmentalization that occurs because of membranes," Smith says.