

Psychotherapy innovator dies

Carl R. Rogers, founder of "client-centered psychotherapy" and a noted author, died on Feb. 4 at the age of 85. His influence on the technique and theory of psychotherapy has extended over the past four decades.

In the 1940s, working with colleagues first at Ohio State University in Columbus and then at the University of Chicago, Rogers broke away from psychoanalytic approaches and developed a method of counseling and psychotherapy termed "nondirective." Individuals coming for treatment were called "clients" rather than "patients" to indicate the nonmedical nature of the technique. The therapist's job was to communicate empathy and clarify the client's feelings, but the client was regarded as capable of making important discoveries and decisions during therapy sessions. Rogers emphasized the use of tape-recorded interviews for research and training.

The term "client-centered therapy" was adopted in the 1950s as Rogers's approach encompassed not just psychotherapy, but human relationships in general. Important tenets of his philosophy included trusting in one's immediate experiences and using them as a guide, and expressing moment-to-moment feelings in relationships. His best-known book, *On Becoming a Person* (Houghton Mifflin Co., 1961), elaborated on this theory.

Client-centered therapy was applied in group sessions with business executives and educators during the 1960s and also sparked research on innovations in education. In recent years, Rogers promoted his person-centered approach as a technique to ease social conflict in nations such as Ireland and South Africa, where he brought together influential members of opposing groups for discussions.

Treating the mind, risking the body

Medications used to ease anxiety, depression and psychosis can have an unwelcome side effect among the elderly. According to a report in the Feb. 12 *NEW ENGLAND JOURNAL OF MEDICINE*, a number of these drugs increase the risk of persons over 65 years of age falling and fracturing a hip.

Among elderly Medicaid enrollees in Michigan, Wayne A. Ray of Vanderbilt University School of Medicine in Nashville and his colleagues identified 1,021 patients treated for hip fractures in 1981 or 1982 and 5,606 controls with no hip fractures. Those currently taking an anti-anxiety drug with effects extending over several days (including Valium), a tricyclic antidepressant (the most commonly used group of drugs to treat depression) or an antipsychotic were substantially more likely to have had a hip fracture. In contrast, persons taking faster-acting anti-anxiety drugs with effects extending over a day or two had no increased risk of hip fracture.

For the three classes of drugs linked to hip fractures, the risk increased when higher doses were taken. The association between mind-altering drugs and hip fractures was present in all age groups (subjects 85 years of age and older were compared with younger subjects), in both sexes, in both whites and nonwhites, in both nursing home residents and those living in the community and in subjects with and without recent hospitalization. The increased risk also persisted when subjects with a diagnosis of dementia, which included Alzheimer's disease and senility, were excluded from the study.

The results do not prove that the drugs directly caused elderly subjects to fall and fracture their hips, say the researchers, but there appear to be dangers in the sedative effects of "psychotropic" medication among the elderly, which include confusion, drowsiness and loss of muscle coordination. The scientists say investigations of newer psychotropic drugs with fewer sedative effects will clarify the connection to hip fractures.

Biotech tests given go-ahead, look-see

Field-testing for two groups of genetically engineered bacteria — one designed to retard frost formation on strawberries, the other to increase nitrogen fixation in alfalfa — has been the subject of recent actions by the Environmental Protection Agency (EPA).

On Feb. 11, the EPA reinstated a field-testing permit to Advanced Genetic Sciences of Oakland, Calif., for its study of bacteria with a specific gene deleted. These bacteria, which lower the temperature at which frost forms on plants, have been a major part of the continuing controversy over field release of altered bacteria. The company's original permit was suspended last year when EPA discovered an open-air test of the bacteria had been conducted without the agency's permission (SN: 6/7/86, p.366). But new data from the biotechnology firm, indicating the bacteria are harmless to strawberries, prompted EPA to reconsider, and to approve three potential test sites in California.

EPA also received its first "premanufacture notification" subject to EPA regulations published in June 1986. The notification announces proposed field-testing by Cambridge, Mass.-based BioTechnica International, Inc., of genetically altered strains of *Rhizobium meliloti*, bacteria responsible for nitrogen fixation in alfalfa. The new strains provide the plants with more nitrogen than those occurring in nature. Following a 90-day review of public comment and of research information submitted by the company, EPA officials will decide whether to grant a permit for field-testing the new bacterial strains.

Deadly blooms and curious clocks

For the dinoflagellate *Gonyaulax tamarensis*, it's a long time between wake-up calls. Many of these single-celled, aquatic organisms spend the winter on the ocean bottom. But once a year they become swimming cells that can be deadly.

Motile cells of certain dinoflagellates produce nerve poisons and are responsible for so-called "red tides" or "blooms" — high concentrations of the swimming cells. The blooms kill sea animals, and can poison people who eat affected seafood.

Noting that poisoning episodes in the Gulf of Maine occur between April and November, Donald M. Anderson and Bruce A. Keafer of the Woods Hole Oceanographic Institution in Massachusetts studied alternations between resting and motile stages of the local *G. tamarensis*. They conclude in the Feb. 12 *NATURE* that an "endogenous annual clock" is responsible for the dinoflagellate's characteristic life cycle.

That observation alone would not be striking; annual cycles in plants and animals have been observed for years. What makes this biological clock unusual is its lack of external cues such as sunlight and temperature fluctuations, which are absent in the deep waters where the resting dinoflagellates lie. This is the "first conclusive demonstration" of an internal annual clock in a marine plant, according to the authors.

New computer system studies proteins

Combining the latest in computer systems and magnetic resonance spectroscopy, scientists at Stanford University have devised a more "natural" approach to analyzing protein molecules. Older methods of studying proteins, most notably X-ray crystallography, often artificially change their structures. But the magnetic resonance method — which relies on measuring the distances between atoms, as well as tracking their movements — can analyze proteins suspended in solution.

The computer system, called PROTEAN, compiles data on individual proteins and can follow structural changes that occur during protein function. Described in the December *JOURNAL OF BIOCHEMISTRY*, the system takes about 24 hours of computer time to study a single protein.