

PSYCHIATRY

**Freud's Work Applied
In Care of Children**

► APPLICATION of psychoanalytic knowledge and the insights of depth psychology is helping teachers and parents understand children and handle them properly.

Some of these applications were cited by Drs. Adelaide M. Johnson and Mary E. Giffin of the University of Minnesota and the Mayo Clinic, Rochester, Minn., in a report to the American Orthopsychiatric Association meeting in Chicago.

It was the nursery school teachers who were first to use this knowledge to better their teaching, they reported. These teachers observed the individual child in spontaneous play as a way to learn what conflicts bothered him. They recognized his need for active, independent experience instead of regimentation and rote learning.

Parents are now being guided by ideas inherited from Freud's work, as, for example, feeding the baby when he is hungry, so-called "demand feeding," instead of letting the clock determine the time for baby's bottle.

The family is replacing the individual as the unit of psychiatric diagnosis and treatment, Dr. Nathan W. Ackerman of Columbia University, New York, told the same meeting.

The interrelations of individual and family play a prime part in the precipitation of mental illness, in shaping its course and in determining recovery and the risk of relapse, Dr. Ackerman said.

The degree of success or failure of adapting to what is required of the individual as husband or wife, father or mother, parent or child, brother or sister bear directly on whether a person will stay well or get sick.

This depends upon the individual and his family environment, not on the individual alone, Dr. Ackerman pointed out.

Science News Letter, April 27, 1957

OCEANOGRAPHY

**Water Sampler
Aids in Pollution Study**

► AN AUTOMATIC water-sampling apparatus, built by the University of Washington's oceanography department, will be used to help detect pollution in Puget Sound.

Installed in Hammersley Inlet, near Shelton, Wash., the apparatus takes a water sample every hour for a week before it must be reset.

Washington State Fisheries Department officials believe that such frequent testing is highly important in areas where winds, tides, currents and temperature may affect the composition of the water.

Periodic sampling away from Hammersley Inlet also will be continued, with the university's oceanographic laboratories supervising the analytical work.

The installation will be part of the gen-

eral research of water pollution in southern Puget Sound oyster-growing areas. Chief pollution suspect in oyster areas is sulfite waste liquor.

The sampling will provide a basis for major laboratory experiments by the shellfish division of the Fisheries Department on the biological effects which various low concentrations of sulfites have on Pacific and Olympia oysters.

Sharing in the program and the costs is the Washington Pollution Control Commission, headed by E. F. Eldridge. Dr. Clifford A. Barnes is directing the University's phase of the work, with Cedric Lindsay, supervisor of shellfish management, acting for the Fisheries Department.

Science News Letter, April 27, 1957

MEDICINE

**One-Two Punch Against
Cancer With Drugs, Diet**

► A ONE-TWO PUNCH against cancer that will first stop its growth and then increase the body's own means of getting rid of it appears possible with a new group of chemicals developed by scientists at Rutgers University, it was reported in New Brunswick, N. J.

The new compounds have not yet been named but they are similar to TEM, TEPA and MEPA, now used to treat certain types of cancer. Both groups of drugs were discovered and developed by Dr. Moses L. Crossley, Rutgers Bureau of Biological Research.

These new drugs are more efficient against cancer and less toxic to animal patients than the earlier ones, Dr. James B. Allison, director of the bureau, reported.

The plan is to develop a cancer therapy along the same lines that the sulfa drugs and antibiotics have been used against bacteria-caused disease, he said.

"The procedure has been to use sulfa or an antibiotic to administer a paralyzing blow to the disease, and then let the patient's normal recuperative powers do the rest," Dr. Allison noted.

In cancerous rats, the drugs stop the cancers from growing and, in some instances if started early enough, the treatment actually causes the tumors to regress. Once this happens, there is a point from which to attack the disease with other forms of treatment such as surgery or diet, he said.

The Rutgers researchers are using dietary methods as the second part of their one-two punch and believe that amino acids, hormones and other types of diet therapy will increase the amount of tumor regression caused by the drugs.

Dietary proteins supplemented with amino acids increase the production of plasma albumin, the activity of certain enzyme systems, and build up protein reserves in tumor-bearing rats, Dr. Allison explained.

Once this protein reserve is built up the regressions of cancers already halted by the new chemicals begin to increase, he reported.

Science News Letter, April 27, 1957

IN SCIENCE

CHEMISTRY

**Synthetic Fiber Made
From Paper Waste**

► A SYNTHETIC TEXTILE plastic has been made from the paper industry's most troublesome waste, lignin. This promises to add a new fiber to those available to industry in addition to utilizing a voluminous and cheap by-product of paper pulp and cellulose production.

A report by two chemists, Dr. Louis H. Bock and James A. Anderson of Rayonier, Inc., Shelton, Wash., to the American Chemical Society in Miami, told of this chemical achievement.

The new synthetic, chemically a polyester, is made from vanillin, the synthetic vanilla, which comes from lignin. Nearly a third of the wood used in making paper is lignin. This material may be thought of as the glue or cement in which the cellulose of the wood is embedded. Lignin is so plentiful that it is actually burned in paper mill boilers.

To produce the new fiber, vanillin is converted into protocatechuic acid from which the new unnamed polyester material is made.

Protocatechuic acid is also obtainable from the bark and needles of the western hemlock and this may permit the utilization for fiber production of portions of the tree not useful for lumber or paper.

Science News Letter, April 27, 1957

TECHNOLOGY

**New Safety Standard for
Refrigerators Proposed**

► A STUDY of children experimentally trapped in refrigerators has led to the development of a new standard for safety devices inside refrigerators.

Within one year and 90 days after its adoption, all new household refrigerators carried across state lines must be equipped with a device that easily opens the door from the inside with either a push on the door or with the turn of a doorknob, the U. S. Department of Commerce reported.

Infrared studies of children in the dark of a simulated closed refrigerator showed that most children attempted to escape by one of these two methods. With the better devices, the majority of the 201 youngsters tested were able to get out of the entrapment quickly. Three-fourths of those who released themselves were out in less than three minutes and a third of these in less than 10 seconds.

The study was carefully designed to avoid any harmful psychological effect on the children.

Science News Letter, April 27, 1957

ICE FIELDS

VIROLOGY

Study Shows Only Small Part of Virus Dangerous

➤ YOU may be going to the doctor to get a periodic fever for immunization against diseases such as influenza in the future. This is the speculation of Dr. Ernest C. Pollard, professor of biophysics at Yale University, who reported that only a small portion of the most deadly virus is dangerous.

Recent studies, Dr. Pollard said, have shown that the danger factor is only a small element in the virus and that it can emerge only through a tiny "escape hatch" in the lining that surrounds the individual virus.

Armed with this knowledge of the structure of the virus, Yale biophysicists think it will be possible to alter the disease carriers so as to render them harmless. This in turn could lead to a radically different method of immunization, such as the one suggested by Dr. Pollard. He says that it may one day be possible to use diathermal machines for the purpose of creating artificial fevers periodically in people that will leave them immune to diseases caused by viruses.

Scientists, Dr. Pollard says, are now beginning to use atomic physics and atomic chemistry to learn more about the behavior of cells. Yale biophysicists, for example, have already found some cells are immune to viruses while others are susceptible to them.

Precise knowledge about the laws governing the cell will have immense effect on human life, Dr. Pollard predicts, and may eventually produce the key for controlling cancer.

Science News Letter, April 27, 1957

GEOLOGY

Earth Is Midway in Glacial Extremes

➤ THE EARTH sits midway between a full ice age and no ice, the members of the Society of Sigma Xi at the University of Buffalo learned.

"We now stand," Dr. Donald B. Lawrence, professor of botany at the University of Minnesota, said, "approximately mid-way between a full glaciation and an interglacial period in which all ice and many inland lakes would have returned to the sea, raising its level 200 to 300 feet."

The current idea that the climate is getting better gradually since Ice Age glaciers began to recede has been shown to be a misconception, Dr. Lawrence pointed out. Actually, he reported, the climate has been both less favorable and more favorable for glacier nutrition than it is at present and

probably more favorable for glacier growth several times.

Dr. Lawrence based his conclusions on the study of the latest glacier expansion known as the "Little Ice Age." He studied several glaciers including the small Eliot Glacier entrenched in the shady northeast slope of Mt. Hood, Oregon's highest volcanic peak.

The growth layers of a tree pushed part way on its side by the maximum advance of its ice shows that it occurred about 1740 A.D. Studies of the Mendenhall Glacier, 12 miles north of Juneau, Alaska, show that since about 1765 the ice has backtracked two miles.

Dr. Lawrence suggested that a great dearth of sunspots could be correlated with the maximum glacier extension.

Science News Letter, April 27, 1957

AERONAUTICS

Pilots Need Help to Avoid Mid-Air Crashes

➤ AIRCRAFT have to be made more conspicuous and a pilot warning device developed to help avoid mid-air collisions, Wayne D. Howell of the Civil Aeronautics Administration told the Society of Automotive Engineers meeting in New York.

This was one conclusion by Mr. Howell and R. B. Fisher from a study designed to find scientific data related to the mid-air collision problem and the visual avoidance of such collisions.

The study also showed that:

1. Aircraft can be seen farthest under negative contrast conditions, such as a dark aircraft against a light background, when there is a very high overcast present.

2. Pilots could improve their ability to detect other aircraft on a collision course by developing better search habits, but the amount of work they have in the cockpit limits this.

3. Results obtained give a definite indication of expected average pilot performance in detecting aircraft approaching on a collision course while performing normal cockpit duties.

4. Higher speed aircraft, such as jets, will mean that visual avoidance of collisions will be impossible.

A surprising result of this study, Mr. Howell told the SAE's national aeronautic meeting, was the fact that informing the pilots tested they were flying a collision course seemed to make little difference, only at head on and at 100 degrees.

A second study showed that:

1. The rear hemisphere and below the horizon forward are the areas in which practically all aircraft have poor or no visibility.

2. The overtaking of one aircraft by a second aircraft has been the type of convergence in the greatest percentage of past collisions.

3. More collisions happened at an altitude of 500 feet and below than at all other altitudes combined.

Science News Letter, April 27, 1957

PSYCHOLOGY

Brain's Record of Past A Continuous Movie Film

➤ THE BRAIN contains a permanent record of your past that is like a single continuous strip of movie film, complete with sound track.

This "film library" records your whole waking life from childhood on.

You can live again these scenes from your past one at a time when a surgeon applies a gentle electrical current to a certain point on the temporal cortex of your brain, Dr. Wilder Penfield, director of the Montreal Neurological Institute, reports to the Smithsonian Institution.

As you re-live the scene from your past, you feel exactly the same emotions that you did during the original experience.

One young woman, Dr. Penfield reports, heard music when a certain point in the temporal cortex was stimulated. She said she heard an orchestra playing a song. Time after time when the same spot was stimulated she heard the same song.

It did not seem like a memory to her. In fact, she was quite sure each time that someone had turned on a phonograph in the operating room.

A South African who was being operated upon cried out in great surprise that he heard his cousins talking. He explained that he seemed to be there laughing with them although he knew he was really in the operating room in Montreal.

"The electrode applied to the temporal cortex," Dr. Penfield explains, "recalls specific occasions or events so that the individual is made aware of everything to which he was paying attention during a specific interval of time."

Science News Letter, April 27, 1957

ASTRONOMY

Propose Theory for Crab Nebula's Light

➤ COLLIDING CLOUDS could have caused polarization of the light from a supernova that suddenly exploded to tremendous brilliance on July 4, 1954, a Carnegie Institution of Washington scientist reports.

Dr. W. C. Erickson of the Department of Terrestrial Magnetism says that, in collisions between high-velocity clouds of ionized matter as found in the Crab Nebula, the polarized light observed could be generated by "bremsstrahlung." This is radiation resulting from the acceleration of a free electron in the electric field of the nucleus.

Astronomers have previously credited the polarization to an atom-smashing operation of a giant scale.

He reports one astronomer is taking photographs with the 200-inch telescope at Mt. Palomar, Calif., that should show which of these theories is correct. Dr. Erickson's theory is outlined in the British scientific journal, *Nature* (April 13).

Science News Letter, April 27, 1957