

PSYCHIATRY

Mental Hygiene Prevents Disease

➤ MENTAL HYGIENE PROGRAMS do reduce the amount of mental disorders, at least in the Army, two Army medical officers reported to the American Psychiatric Association meeting in Chicago.

The two are Maj. William S. Allerton and Col. Donald B. Peterson, chief psychiatry and neurology consultant to the Army Surgeon General.

In the past five years, psychiatric treatments for patients not in hospitals have increased in the total Army from 107 per 1,000 troops per year in 1951 to 150 in 1955. At the same time, the number so sick they had to be put in hospitals has decreased from 30 per 1,000 troops per year in 1951 to 13 in 1955.

The Army's mental hygiene consultation service or MHCS, was started during World War II. In continental United States where the program operates, the decline in hospitalization for mental disorders has been from 20 per 1,000 troops per year in 1951 to 13 in 1955.

At posts having MHCS, the decline has been from 28 in 1951 to 11.5 in 1955. In the past three years, rates at posts with MHCS's have been "significantly lower" than at other U.S. posts in spite of the fact that all basic training posts, where the amount of mental disturbance is expected to be higher, have MHCS.

The decline in psychiatric disorders severe enough to require sending the patient to a hospital cannot be explained, the Army officers state, on the basis of changes in induction policy or by changes in amount of discharge for administrative or other non-battle medical reasons.

Science News Letter, May 12, 1956

PSYCHIATRY

Method Stops Suicides In Military Service

➤ A METHOD that prevented death by suicide in all but one of 75 men in military service who threatened or attempted it was reported to the American Psychiatric Association meeting in Chicago.

After an interview in which the situation and the patient's plight were discussed, the patient was told three things:

1. It was "unfortunate but true that if he really needed to kill himself, neither the psychiatrist nor anyone else could stop him." Therefore, only the patient could keep himself alive.

2. If he killed himself, it would be considered, on the basis of the interview, the act of a sane man. His family would lose material benefits resulting from his death. If the suicide attempt failed, Army regulations made a court-martial mandatory.

3. No requests would be granted for hospitalization, change of assignment, transfer, light-duty slip, and the like.

The referring physician, commanding offi-

cer or other referral source were told of these steps and encouraged to manage the patient in the same way.

The "crucial" act of the psychiatrist was to give the above three facts to the patient without hostility and therefore without encouraging retaliation on his part.

Checking five to 19 months later showed only one death by suicide in the group. This does not mean, however, that the method would work for a civilian population or persons of a different age group, cautioned the psychiatrists, Dr. William Offenkrantz of Creedmoor Institute for Psychobiologic Studies, New York, and Dr. Edwin H. Church of Rockland State Hospital, Orangeburg, N. Y.

Science News Letter, May 12, 1956

BIOPHYSICS

See Evolution Signs in Protein Reaction to X-ray

➤ THE WAY PROTEINS react when bombarded by X-rays gives some signs of how evolution proceeded on earth, it appears from studies reported by Dr. Walter Gordy and associates of Duke University, Durham, N. C., at the meeting of the American Physical Society in Washington.

"The evidence for the radiation survival value of the proteins suggests how solar radiation in the early stages of the earth's history may have been instrumental in their accumulation on the earth," Dr. Gordy said. "This would be evolution at the molecular level."

X-rays, the Duke scientists have found, literally explode most of the basic amino acids, which are building blocks of proteins. They are likewise devastating to the simpler peptides that are formed from two or three amino acids joined together to make a small fragment of protein molecule.

The proteins themselves, however, do not "fall apart at the point where the radiation strikes but withstand the primary thrusts of ionizing radiations in a remarkably effective manner," Dr. Gordy said.

"When an electron is knocked out at any point along the main polypeptide chain, the vital backbone structure of the proteins, this hole is quickly filled by an electron borrowed from atoms of one of the many side chains. Thus the charge loss is shifted out to points where the immediate damage is less severe and where later restorations are possible."

The nucleic acids, substances in the genes believed to be the patterns for the reproduction of new biological material and hence responsible for hereditary characteristics, behave somewhat like the proteins.

Their findings came from studies in which microwaves, best known in World War II radar, are used to look within solid matter and identify broken pieces of biological molecules torn apart by ionizing radiations such as X-rays.

Associated with Dr. Gordy in the research were Howard Shields, Gene McCormick, W. B. Ard and Harvey N. Rexford.

Science News Letter, May 12, 1956

IN SCIEN

MARINE BIOLOGY

Fast-Growing Clams Pass Physical Exam

➤ YOUNG HYBRID CLAMS of Yankee-Mexican parentage recently proved they are tough enough for commercial propagation in cold United States waters.

The clams, which grow about twice as fast as ordinary northern hard clams, recently underwent a physical check-up at the Virginia Fisheries Laboratory, Gloucester Point, Va. Results showed the clams had survived their second Virginia winter almost as well as the native specimens.

Scientists say it may now be possible to develop a clam-farming program in Virginia with the fast-growing hybrids. If the hybrid clams reach market size a year or two sooner than the wild variety, clam farmers will reap three or more "crops" in the time formerly required for two crops of native commercial clams.

Science News Letter, May 12, 1956

PHYSICS

Electronic "Brains" Are Growing Up

➤ GIANT ELECTRONIC "BRAINS" are growing up. They no longer have to be spoon-fed their information but are being equipped with automatic devices to feed themselves.

Many computers are now "fast, flexible and faithful" enough to process experimental evidence directly, thus relieving scientists of routine chores, Dr. Nicholas Metropolis of the Los Alamos Scientific Laboratories said.

He told the American Physical Society meeting in Washington that electronic "brains" are now being used as laboratory tools. At the University of California, Berkeley, pictures taken of atomic smash-ups in liquid hydrogen bubble chambers will be scanned photoelectrically and the information so gained fed directly to an electronic "brain."

Another computer, the MANIAC, at Los Alamos, is making calculations in "eighteen-dimensional space" in an attempt to decipher what happens when charged particles called pions smack into the hearts of hydrogen atoms.

Other problems Dr. Metropolis said are being tackled with the aid of computers range from designing more powerful atom smashers to setting up realistic models of the atomic furnaces that stoke stars like the sun.

The aim, he said, is not to produce a complicated set of numbers but to extract a simple idea from them.

Science News Letter, May 12, 1956

CE FIELDS

BIOCHEMISTRY

Link Adrenal Gland to High Blood Pressure

► A FURTHER LINK between the adrenal glands, best known as producers of anti-arthritis cortisone, and high blood pressure was reported by a team of Canadian scientists, at the meeting of the American Society for Clinical Investigation in Atlantic City, N. J.

Most patients with the ordinary kind of high blood pressure, they find, excrete one of the adrenal hormones, aldosterone, via their kidneys.

The link between the adrenals and high blood pressure has already been considered close enough by some doctors to lead to surgical removal of the glands of some patients whose dangerously high blood pressure could not be reduced by other means.

The latest link, finding aldosterone in the urine of most patients, seems to mean that in these patients their adrenals are "over enthusiastic producers" of the hormone. Search for a chemical or drug to slow down the gland's overproduction of this hormone is now under way.

The scientists reporting the aldosterone finding are Drs. Jacques Genest, Guy Lemieux, Andre Davignon, Erich Koiv, Wojciech Nowaczynski and Paul Steyermark of Montreal, Canada.

Science News Letter, May 12, 1956

ENTOMOLOGY

Destructive Fruit Fly Combated in Florida

► INVASION of Florida by one of the world's most destructive fruit pests, the Mediterranean fruit fly, will mean tight restrictions on fruit transportation in the South and Southwest.

The first United States infestation of the Mediterranean fruit fly in nearly 30 years has touched off an intense campaign by Federal and state governments to wipe out the pest.

The fly, commonly called the Medfly, is being confined to a 10-square-mile area on the northern outskirts of Miami at the cost of all the fruit growing in the area. Fortunately, most of the fruit is on trees in private gardens.

However, the start of another infestation has been noted in a garden 18 miles north of Miami. All fruit in both areas is being destroyed.

U.S. Department of Agriculture officials expect a state quarantine to be placed on all shipments of fruit and some vegetables out of Florida. The quarantine will require special treatment of fruit leaving the state.

According to Dr. W. L. Popham, director

of the Federal crops regulatory programs, the infestation will probably be stamped out in the near future.

"It is hard to say just when we will get it licked, but with our modern methods of control I would say we have at least a fighting chance," Dr. Popham said. He added, however, that he is "an optimist."

The methods of control include spraying trees, destroying all fruit in infested areas, and fumigation of fruit leaving the state.

The Department of Agriculture has sent 2,500 Mexican fruit fly detection traps to Florida. The traps indicate the presence of fruit flies but do not catch or kill them.

The Medfly destroys millions of dollars worth of fruit annually in subtropical regions. Preventing infestations in the United States has cost growers \$7,500,000.

This is the fly's second invasion of continental United States. The first, which began in 1929, was also in Florida. It was wiped out in two years.

Science News Letter, May 12, 1956

MEDICINE

Find Gland Defect Cause Of High Blood Pressure

► DISCOVERY of an adrenal gland defect that causes high blood pressure was announced by Drs. Alfred M. Bongiovanni and Walter R. Eberlein of Philadelphia at the meeting of the American Society for Clinical Investigation in Atlantic City, N. J.

The defect also is virilizing, making females masculine and little boys like grown men in sex development.

Small doses of cortisone, much smaller than those used to treat arthritis, will reverse the condition and bring down the high blood pressure in patients with the newly discovered defect.

This gland defect is quite rare. Probably no more than 200 persons in the United States suffer from it. The defect consists in a lack of an enzyme chemical called 11-hydroxylase. Because of this lack, the adrenal gland cannot make its own cortisone. Instead it makes another hormone, desoxycorticosterone.

Until the report, scientists did not know that the human body ever made desoxycorticosterone. This adrenal gland hormone had been created in the laboratory by the Swiss chemist and Nobel Prize winner, Dr. T. Reichstein. Later this hormone was found in beef adrenal glands, but was otherwise something of a laboratory curiosity.

Now, Dr. Bongiovanni reports, it is clear that the human body does make it. Normally, however, it is changed by the enzyme, 11-hydroxylase, so rapidly that no trace of it is found. He and Dr. Eberlein found it in a few patients by a very thorough search for all possible adrenal gland chemicals, since they suspected the high blood pressure and virilization were caused by adrenal gland disorder.

Although because of the defect these patients cannot make cortisone, this defect is not operating in arthritis.

Science News Letter, May 12, 1956

PSYCHIATRY

Boys Set Fires to Show They Are Men

► WHEN A BOY not yet in his teens sets a fire, he does so to assert his manhood and at the same time to protect himself against fear of sexuality, cold and hostile parents, school and society in general.

This picture of the deep-rooted problem and unconscious conflicts of the young fire-setter was given by Dr. Stanley Geller of Beverly Hills, Calif., at the meeting of the American Psychiatric Association in Chicago.

Fire, he pointed out, is universal in its importance and fascination. In some societies, fire is used as a symbol for various and sometimes opposed things, such as love and hate. In the same way, Dr. Geller explains, children use fire in different ways to express their unconscious conflicts.

Study of 75 child firesetters showed that, in almost all cases, the parents did not get along together and were rejecting of the child. The mother was cold and indifferent. The father was openly hostile and frequently beat the child. Bed-wetting, sometimes linked with firesetting, was not consistent in this group.

The children themselves fell basically into two groups: 1. Outwardly hostile and aggressive; 2. Passive femininely identified.

"These children," Dr. Geller said, "have very little control because they have learned none at home. They view sexuality as a dangerous, destructive force that needs controlling."

"Firesetting appears to be a deep-rooted problem stemming out of an intolerable home situation with fears projected against other areas such as school and society in general."

"Fire is an assertion of manhood and a means of protection against these threats."

Science News Letter, May 12, 1956

HORTICULTURE

Trace Family Tree Of French Marigold

► AN EXTENSIVE GENETIC STUDY of the popular garden flower, French marigold, by Dr. Joseph Towner, University of California at Los Angeles floriculturist, has established its line of descent.

Parents of the dainty flower are the African marigold and another species of marigold known as *Tagetes tenuifolia*. Marigolds are native to Mexico.

History of the French marigold dates back to an aesthetic conquistador, it has been speculated, who, plucking the bright orange flowers in the Mexican countryside, decided to take a plant back to his native Spain. From there it was perhaps introduced to France. French horticulturists improved the species, producing the garden variety known today as the French marigold. Dr. Towner does not know where the African marigold got its name.

Science News Letter, May 12, 1956