PSYCHIATRY

Mental Illness Battle

Veterans Administration to wage all-out chemical war against mental disease, checking on patients receiving treatment for ten years. New drugs also to be tested.

➤ BATTLE PLANS for all-out chemical warfare on mental disease are being drawn at the Veterans Administration in Washington.

Large-scale investigation of tranquilizing drugs mentioned in a carefully guarded statement from VA is only one part of the new project, SCIENCE SERVICE learned.

Search for possible chemical defects in the bodies of mental patients will be made. If such are found, drugs to counteract the defects will be sought and tested.

Already a blocking agent is being sought for the chemical just discovered in the blood of schizophrenia patients that causes schizophrenia symptoms temporarily in normal persons. First public announcement of the discovery was made only recently at the meeting of the American Psychiatric Association. (See SNL, May 19, p. 308.)

More biochemical studies are the route to prevention of mental disease, VA psychiatrists optimistically tell each other, although their public statements are far more cautious.

Tranquilizing drugs, both present and future ones, will be tested. At least 12, some not yet announced, are being subjected to careful chemical study as part of the new VA project.

Testing of these drugs, however, will not be on human guinea pigs. The drugs will not be given to patients until VA scientists are sure of their value.

Drugs other than tranquilizers will be studied. Some mental patients are all too tranquil. Others are quieted by the new drugs, but grow depressed while taking them. Stimulating drugs to use with the tranquilizers or alone will be sought and carefully studied.

One question troubling doctors now is why does reserpine, for example, depress one patient and not depress another with apparently the identical mental illness. Another vitally important question is why does chlorpromazine cause liver damage in some, but not all, patients.

VA will seek the answers by careful laboratory studies continuously carried on during use of new drugs. Tests for liver damage are now made almost every day instead of once a week in VA hospitals using chlorpromazine. If any signs develop in a patient, he is taken off the drug immediately. There is no waiting until yellow jaundice shows after weeks or months that the patient has suffered liver damage.

Patients in the VA studies will be followed for five or even ten years, to see how they fare. They will be examined not only to see whether their mental health remained good, but to detect any other effects, good or bad, from the treatment. VA is in a unique position to do this kind of follow-up, particularly with service-connected cases.

To any who think ten years is a long time to await results of treatment, VA psychiatrists point out that mental disease has been with us since the dawn of civilization. Looked at in that light, ten years is a very short time.

The VA mental disease study will follow the general lines of the internationally famous study it made with the Armed Forces of the so-called wonder drugs for tuberculosis.

At first only a few hospitals will start on the studies. Gradually all 40 VA mental hospitals and perhaps some other VA facilities will be included. Reason for the slow start is the need to plan carefully for a thorough-going investigation of all phases of drug and other treatment of mental patients.

The project will be directed by an executive committee headed by Dr. S. T. Ginsberg, chief of the psychiatry division at the VA central office in Washington.

Science News Letter, May 26, 1956

BIOPHYSICS

Picture of Bones Taken by Sound

➤ HIGH FREQUENCY SOUND WAVES are being used, as photographers use light, to take pictures of bones and other body parts by scientists at Polytechnic Institute of Brooklyn, Brooklyn, N. Y.

Their work brings closer the day when sound pictures of internal organs may be used to diagnose illness. Profs. William R. MacLean and Eustace E. Suckling are the Institute scientists who worked on developing the sonic camera.

It consists of a plastic tank filled with water in which the object to be viewed is suspended, crystals to direct ultrasonic beams onto the object and a sonic lens that

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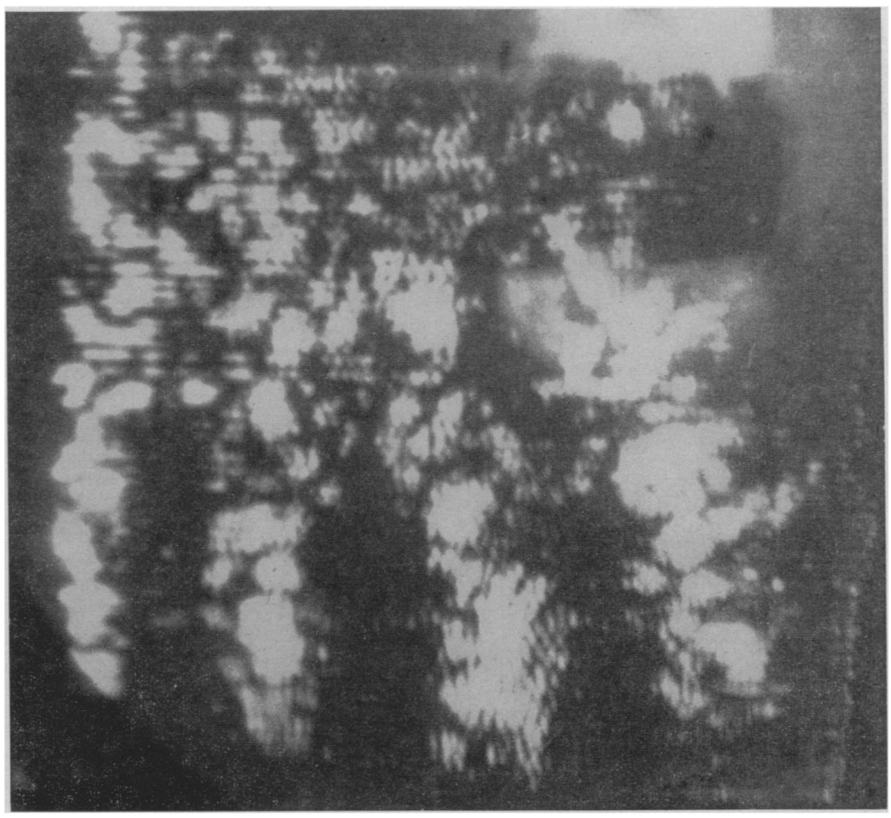
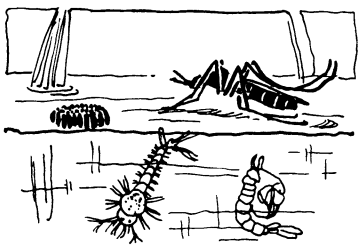


***BONE STRUCTURE BY SOUND**—This picture shows the general bone structure of the human hand, as "photographed" by sound waves rather than light. Profs. William R. MacLean and Eustace E. Suckling of the Polytechnic Institute of Brooklyn, N. Y., produced the picture during studies of possible uses of a sonic camera. Their work shows promise for diagnosis of illness of internal organs that are transparent to X-rays.*

BIOLOGY

NATURE RAMBLINGS

by Horace Loftin



Changing Forms

➤ FOLLOWING a hard spring shower, the quiet night is rent with the incessant chorusing of male frogs calling for mates. Flash a beam of light along one of the rain pools and you will see these nocturnal singers. There are other singers out that you can hear but not see—mosquitoes, also in search of mates.

If you go back to your rain pool next morning, you will find strings or rafts of shiny black dots coated in a clear jelly-like substance. These are the eggs of the frogs. Looking sharper at the water's surface, you will also find groups of tiny whitish specks, eggs of the mosquitoes.

Your next visit to the pool, some days later, will disclose scores or hundreds of tadpoles—dots with tails—scurrying through the water. These tadpoles are a stage in the life history of the frog.

Although then they little resemble the adults, as they grow, they will sprout legs, lose the tail and develop into an adult in miniature. This process is called metamorphosis, or "changing form."

As frogs do, although even more drastically, the mosquitoes undergo metamorphosis to become adults. When you first saw the tadpoles in the rain pool, you could also find countless numbers of worm-like creatures writhing through the water. These are larvae that hatched from the mosquito eggs, popularly called "wiggle worms," or "wrigglers." They change their old skins for new ones several times, becoming larger at each molt, until they are about three-eighths of an inch long in most species.

On the last larval molt, not a larva, but a creature of a new shape emerges from the old skin—the pupa. This pupa looks like an immense head being tumbled about in the water by a skinny tail. Although the larva is a voracious eater of minute plant and animal life in the water, the pupa eats nothing.

After a few hours to a few weeks of existence, the pupa begins to split its skin down the back, and the adult mosquito crawls out, perches for a few moments on the empty shell, then flies away.

As adult mosquitoes, the larvae and pupae must breathe air to live. For this purpose, they are equipped with a tube-like structure that they can stick above the surface of the water to take in air.

Thus, to prevent the emergence of these young into winged, biting mosquitoes, oil can be poured on the surface of their pool, keeping them from getting fresh air.

Science News Letter, May 26, 1956

MAMMALOGY

Seals Use Perfume As Direction Finder

➤ MALE SEALS and sea lions let their cows know where to find them by giving off a sweet scent which, in the case of fur seals, at least, is a "pleasant perfume."

The scent from the bulls was discovered by Dr. J. E. Hamilton of Ross House, Stanley, Falkland Islands, when he was examining the small, almost residual herd of fur seals in the Falkland Islands.

He suggests that the bulls, which occupy territory and wait for the cows to come ashore, use the scent as a direction finder for their females. Dr. Hamilton reports his findings in *Nature* (May 12).

Science News Letter, May 26, 1956

AGRICULTURE

New Zealand Sells Green Buttermilk

➤ NEW ZEALAND is exporting green powdered buttermilk.

The colored powder is used as a poultry feed by farmers in Singapore and the Federation of Malaya. It is colored green so it can be distinguished from powdered milk for humans, even when mixed with water.

Coloring powdered buttermilk, the U. S. Department of Agriculture reports, is only one of 30 ways in which the New Zealanders package and market their milk products to satisfy their customers.

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Sonic Bone Pictures

(Continued from p. 323)

forms a sound image of the object on another, piezoelectric crystal.

The image can be formed either by reflected sound waves or those that have passed through the object. When the waves hit the piezoelectric crystal, they generate electric charges on it corresponding exactly to the variations in sound intensity of the image.

A mechanical scanning system picks up the charges, which vary at a radio frequency of about three megacycles, and amplifies them to govern the visible picture made on an oscilloscope, or TV-like, screen.

Pictures taken at the present time show with relative clearness the outlines of such delicate structures as a fish skeleton, a cat's kidney and the bone structure of a human hand. The method is promising for future photography of such X-ray transparent organs as the pancreas.

Sound waves can be reflected by objects as small as the length of the wave itself. The one-fiftieth of an inch high-frequency waves used by Profs. MacLean and Suckling could, therefore, reflect an object of about that size, suggesting the possibility of picturing nerves, veins and arteries.

Objects being pictured by sound waves must be immersed in water because oxygen atoms in the air absorb the high-frequency sound waves.

Science News Letter, May 26, 1956