

MEDICINE

Fear-Worry Chemical

Still unidentified chemical found in the blood of worried or fearful people may account for way acute emotional upsets cause physical ills.

► DISCOVERY of a fear-and-worry chemical in the blood was announced by Drs. A. T. Milhorat, S. M. Small, E. J. Doty and W. E. Bartels, of New York, at the Clinical Research Meeting held at the New York Academy of Medicine.

This chemical, as yet unidentified, may account for certain physical changes that occur in the body during an acute emotional upset and may explain how worry or fear, for example, can cause symptoms of indigestion and even cramps, nausea and diarrhea.

The fear-and-worry chemical was discovered when blood from patients showing marked anxiety and fear was added in small amounts to a solution in which a loop of rabbit's intestine was being kept alive outside the body. The rhythmic contractions of the intestinal muscle were modified by blood taken while the owners were emotionally upset, but blood taken from the same persons after they had calmed down had no such effect on the intestinal contractions.

Blood from a man suffering from an acute mental disorder of the kind termed an anxiety psychoneurosis produced marked changes in the contractions, but after the patient had received psychiatric treatment and was recovering, his blood had less and less effect on the contractions of the rabbit muscle.

The nature of the fear-and-worry chemical has not yet been determined. It is an unstable substance, disappearing almost completely when the blood stands for 15 or 20 minutes after being taken from an emotionally upset person. The changes in muscle contraction it causes are not the relatively simple responses to adrenalin or acetylcholine.

Science News Letter, June 12, 1943

TB Germs Produce Booster

► DISCOVERY that certain tuberculosis germs when grown outside the body produce a booster chemical that increases the anti-bacterial action of the sulfa drugs was reported by Dr. Walsh McDermott and Miss Alice Tracy of Cornell University Medical School.

This is believed to be the first time that anyone has found a disease germ helping to boost the action of a sulfa drug in checking the development of other germs.

The scientists are now trying to learn the exact chemical nature of the booster and whether or not it increases sulfa drug action against other germs besides the one tested, which was the common intestinal organism, *Bacillus coli*.

The booster chemical stimulates the growth of *B. coli* when sulfanilamide is not present.

The same tuberculosis germs also produced another chemical which antagonized sulfa drug action exactly as p-aminobenzoic acid does. The antagonistic effect is masked by the booster effect at certain concentrations.

Science News Letter, June 12, 1943

Fighting Blood Clots

► A NEW WAY of using heparin, the anti-blood-clotting chemical, which may have life-saving usefulness in war surgery as well as in preventing thrombosis and embolism after operations, was reported by Dr. Leo Loewe and Dr. Philip Rosenblatt, of New York.

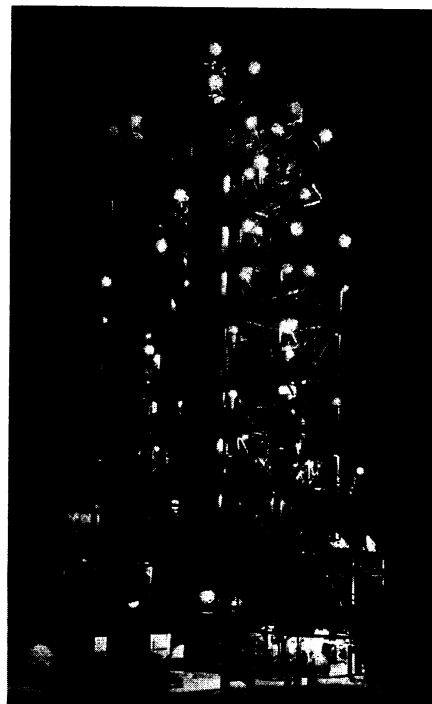
These doctors have found a way to deposit the heparin under the skin in what might be called banks of the anti-clot chemical. As a result it gets into the blood in a slow, even way, without dangerous runs or bankruptcies. The use of safe anti-blood-clotting treatment over protracted periods is thus made possible and practicable.

Science News Letter, June 12, 1943

Clawed Frog for Tests

► THE SOUTH AFRICAN clawed frog, a hardy animal from Capetown, is proving valuable for pregnancy tests, for assays of the potency of commercial sex gland preparations, and may "pave the way to untold discoveries in the realm of the ductless glands," Dr. Abner I. Weisman and Dr. Christopher W. Coates, of New York, told the medical society members.

Science News Letter, June 12, 1943



FOR RUBBER — This distillation tower reaching 20 stories into the sky is part of the \$17,000,000 Monsanto styrene plant in Texas. When completed it will produce a large part of all the styrene from government-owned plants going into synthetic rubber.

MEDICINE

Mystery Disease Turns Up To Puzzle Army Doctors

► A MYSTERIOUS DISEASE for which no cause or method of getting it has yet been found turned up in some of the soldiers at Fort Bragg, North Carolina, late last summer (*Journal, American Medical Association, June 5*).

Lt. Col. Worth B. Daniels and Capt. H. Arthur Grennan, two former Washington, D. C., physicians now in the Medical Corps, Army of the United States, call the disease "Pretibial Fever, An Obscure Disease," in their report.

Fortunately the disease was mild. There were no deaths and only 40 cases. Because the men all were quartered near one another in a limited area of the reservation and had identical symptoms, it apparently looked as if an epidemic of some sort were brewing.

Chief features of the sickness were fever, lasting about five days, and a rash, which appeared toward the end of the fever and was usually located

over the inner, larger bone of the leg below the knee. This bone is the tibia, from which the disease gets its name, pretibial fever.

As soon as the fever went down, the men got well rapidly, with no complications, weakness or depression.

A commission of experts assigned by the Surgeon General of the Army to investigate the disease was unable to

find any germ cause or any method by which the men might have gotten it. Members of the commission were: Dr. John R. Paul, of Yale University Medical School; Dr. Norman H. Topping, U. S. Public Health Service, and Major Cornelius Philip of the Army.

An outbreak of what may have been the same disease occurred in August, 1940, in Wrens, Ga.

Science News Letter, June 12, 1943

ASTRONOMY

Quadruplets in Sky

Far-off star, 59D Serpentis, which looks like one to naked eye, now believed to be really three or four circling in complicated dance.

By CHARLES A. FEDERER, Jr.
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► QUADRUPLETS and quintuplets in the sky may not be as rare as they are on the earth, but astronomers get nearly as excited about them. At the meeting of the American Astronomical Society several papers dealt with multiple stars,

among them a discussion by Mrs. Elizabeth Cornwall Tilley, of the University of Michigan, concerning the plain-seeming star known as 59D Serpentis.

Should 59D Serpentis be called single, as it appears to the naked eye? Or double, as it appears in a four-inch telescope? Or triple, as the spectroscope

reveals one of its components to be? Or quadruple, as the sum of its parts would make it? But if quadruple is correct, the quads are not as nearly alike as they usually are among humans.

The star 59D Serpentis is also unusual in that two of its triplet stars are hot, white twins, while one is a cooler yellow star like our sun, only much larger.

One of the standard means for discovering doubleness among stars is to observe their spectra. If two stars are revolving around each other, some of their motion is probably toward and away from us, producing the well-known Doppler shift in their spectra. As one star approaches us along one side of the orbit, its spectrum is shifted toward the violet, while its companion's is shifted toward the red as that star recedes. Thus, two spectra are really being seen, and the lines in the combined spectra appear double. These double lines gradually blend as the stars proceed along their orbits, then separate again. This is repeated twice for each revolution they make.

Sometimes one star is so much brighter than the other that the second star's spectrum is suppressed and only one set of lines is seen. However, the regular oscillation of these lines around a mean position proves the star to be a spectroscopic double in any case. In only two or three cases, including 59D Serpentis, are three spectra visible, and only for 59D have the details of the system been determined. The white twins revolve around each other once every 1.85 days, at a distance apart of only four million miles. Together, they revolve around the large yellow star, about 180 million miles distant, or the distance across the earth's orbit, in 386 days. These three form the triplet, around which the distant visual companion, also a white star, may require several thousand years to revolve.

The triple spectrum of 59D Serpentis was discovered independently in 1938 by McLaughlin at the University of Michigan and Tremblot in Paris, and in some cases they took spectrum photographs of the star on the same nights.

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"Rex-steel" is proposed as a name to replace "stainless steel" which indicates only its noncorrosive properties.

The new 199-mile oil pipeline across Florida will soon carry 30,000 barrels a day; Texas barges will unload gasoline at Carabelle, and Atlantic coast barges will load up with it at Jacksonville.



SEWING MACHINE — Radio-frequency current instead of needle and thread is used by this "sewing" machine to join plastic materials. Dr. George H. Brown, RCA scientist under whose direction the electronic machine was developed, shows a worker how to "stitch" a thermoplastic fabric. Although still in the development stage, the machine has possible applications to war production as well as postwar uses.