MEDICINE

Adrenalin Now Used in Treatment of Malaria

NEWEST thing in the treatment of malaria is adrenalin, powerful hormone of the adrenal glands. Instead of giving quinine, stand-by remedy for malaria, or any of the new quinine derivatives, Professor Ascoli, physician-in-chief of the University Medical Clinic in Palermo, Italy, injects adrenalin daily into the veins of malaria patients, he has reported to the Munchener Medizinische Wochenschrift, German medical journal.

The beneficial effect of adrenalin in malaria, Professor Ascoli believes, is due to the fact that it reduces the amount of blood in the spleen. The spleen is the breeding ground in the body for the malaria parasite or germ, and reduction of the amount of blood in the spleen makes conditions unfavorable for malaria parasites to live and multiply.

Professor Ascoli reports he has found adrenalin useful in chronic as well as newly-acquired cases of malaria and in enlargement of the spleen, anemia and general ill-health following malaria.

Science News Letter, July 31, 1937

PSYCHOLOGY

Races Differ Mentally Study of Primitives Shows

ALL men are not born equal. Scientific evidence, long lacking or insufficient, now points to genuine mental differences between races apart from the more superficial superiority that results from advantageous geographic location, proximity to other peoples, and a background of culture or civilization.

It has been natural to suppose that men differ from each other mentally as they do in the more obvious matters of skin color, shape of nose, or curliness of hair. But procuring scientific proof of such differences was a stupendous task.

The test with which an American child is given an I.Q. rating is obviously not suited to an adult African Bushman. Written tests are automatically barred for the illiterate.

So-called performance tests are almost equally useless. The uncivilized man cannot understand the directions necessary, the pictures are meaningless to him.

Even when suitable tests can be devised, comparison between scores of aborigenes and city dwellers is meaningless because of the great environmental differences.

A new attack is provided by comparing two primitive peoples not with civilized man but with each other. Dr. S. D. Porteus, psychologist widely-known for his psychological maze tests, has gone to the desert wastes of Central Australia and to the home of the Kalahari Bushmen in South Africa.

Despite better food and water supply and easier living conditions, the Bushmen excelled the environmentally unfavored Australian aborigines in only two respects, Dr. Porteus reports in a new book, "Primitive Intelligence and Environment," (Macmillan). They offer more determined resistance to white invaders and they are more skillful artistically. The Australians scored about 11 years on mental age tests; the Bushmen rated only between 7 and 8 years.

Science News Letter, July 31, 1937

PHYSIOLOGY

Gland Removal Makes Rats Build Bigger Nests

THE SCAMPERING of rats collecting bits of paper, rags and other materials to build structures that may be called nests is controlled by the activity of the tiny pituitary gland located near the base of the brain. This finding was reported to the biological symposium at Cold Spring Harbor, L. I., by Dr. C. P. Richter of the Johns Hopkins University.

Studies of the activities of the pituitary gland were the object of the tests reported, which disclose anew that this ductless gland controls the thyroid gland in the body and thus the body's heat production. Increased nest-building activity by the rats occurred when they were cold.

To test this, Dr. Richter measured the amount of paper which the rats would steal each day to line their nests. By supplying the paper in rolls an accurate record could be obtained. After normal rats were thus tested, their pituitary glands were removed and the nest-building activity again checked. Increased paper-stealing was noted.

Dr. Richter explained this increase in activity as due to the somewhat complex effect of the pituitary gland. Normally the pituitary gland stimulates the thyroid gland to activity; the thyroid, in turn, controlling heat production in the animal. Thus when the pituitary was removed the thyroid activity diminished and the animal became cold. To get warm it proceeded to build bigger and better nests.

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IN SCIEN

BIOCHEMISTRY

Artificial Models Used To Study Cell Structure

ARTIFICIAL models of living cell membranes are now being used by scientists to detect the facts of cell structure, it was reported to a chemists' meeting in Minneapolis, Minn., by Prof. Hans Neurath of Cornell University. The models are prepared by spreading simultaneously proteins in the form of egg albumin and fatty acids on water surfaces and then testing the film strength. Even though the films are too thin to be seen by an ultramicroscope, inhomogenities in the surfaces can be detected.

Science News Letter, July 31, 1937

ENGINEERING

Recordings on Magnetic Tape Can Run Half Hour

SOME forty years ago a type of phonograph was invented in which the sound was recorded not on wax discs or cylinders but on a coil of steel wire or tape. That the project was attended by no great commercial success was due in part to the high speed at which the wire or tape had to be run through the device.

But the idea has remained alive, states Dr. C. N. Hicks, who describes improvements which have been made by Bell Laboratory scientists.

The new equipment can reproduce tones up to 8,000 cycles, an octave above the top note of a piano, which is better than most phonographs of the ordinary type. A coil of tape 9 inches in diameter will run for half an hour on account of the reduced speed of the machine.

Principal application of the magnetic phonograph is for temporary recordings. No time is required between recording and reproduction, and when a record is no longer needed it can be erased magnetically and used over again an unlimited number of times.

No mechanical indentation or scratch is made in the steel tape. The recording is accomplished by means of a varying magnetic pattern in the steel.

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CE FIELDS

CHEMISTRY

Blood Hemoglobin Derivative Created in the Laboratory

THE FIRST preparation of a dry, crystalline hemoglobin derivative was reported to the Spectroscopy Conference at Massachusetts Institute of Technology by Dr. David Drabkin of the University of Pennsylvania.

The derivative is cyanhemoglobin, a compound of cyanide and methemoglobin, and is supposedly the substance formed in the body from hemoglobin when methylene blue is taken to combat cyanide poisoning. It is very stable in the laboratory and affords a much-needed standard for hemoglobin research.

Injected into the veins, however, it is quite unstable, changing rapidly to methemoglobin compound.

What happens to the cyanide during this reaction that renders it non-poisonous is still unexplained. The only physiological effect of the cyanhemoglobin found to date is that it results in lipemia, or increased fat in the blood. The dry, crystalline form was prepared under a process developed by Dr. E. Flosdorf, also of the University of Pennsylvania.

Science News Letter, July 31, 1937

AGRICULTURE

More Than Dust Blows Away in Dust Storms

MORE than dust blows away when dust storms rage in the West. Before the recent meeting of the American Association for the Advancement of Science in Denver, Dr. H. H. Bennett, chief of the U. S. Soil Conservation Service, presented a startling picture of how a "black blizzard" dissipates basic national wealth, beyond any hope of recovery.

When soil is whipped up by the wind, naturally the finer, lighter particles are carried farthest, leaving the coarser, heavier ingredients behind as sand. It is like the separation of chaff from wheat by a winnowing fan, except that here the "chaff" is the valuable part.

"During February of this year," reported Dr. Bennett, "samples of dust were collected from snow and ice along the pathway of a dust storm that originated in the Texas-Oklahoma Panhandle country and travelled across Kansas, Iowa, Minnesota and Michigan into Canada. At the same time a composite sample was taken from a small dune near Dalhart, Texas, by the same storm that brewed this Canada-bound duster, as well as a sample from unplowed grassland in that vicinity."

Five hundred miles away, near Clarinda, Iowa, these dust samples proved upon analysis to contain 10 times as much organic matter as the dune sand left behind, 9.5 times as much nitrogen, 19 times as much phosphoric acid, 12 times as much fine soil material (sand and clay).

That is, the wind had literally skimmed the cream from the land of Texas, and spread it thinly over the already rich soil of Iowa. Texas was robbed, and Iowa was not particularly benefitted.

As contrasted with new dunes, the nearby grassland soil held on to its valuable plant nutrient materials very creditably. The moral is plain, and not new: where strong winds blow, grass roots must anchor the soil.

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ENTOMOLOGY

Electric Ear Used To Hear Grub Eat Timber

ELECTRICAL science has been enlisted in a new phase of crime detection, the criminals in this case being those insect larvae which eat their way through timbers and weaken them.

A tiny grub, chewing its way through solid wood, makes very little noise about it, it is true. But it is not quiet enough to escape being heard by a supersensitive "electric ear."

The sounds produced by the motions of the larva are picked up by a microphone placed in contact with the wood. The microphone transforms them into electrical pulses, the voltage of which is amplified a million times by a system of radio tubes. A muffled intermittent rattle in a loud speaker betrays the insect.

So feeble is the noise of the insect that some trouble is experienced with unwanted noises transmitted through the timber from other sources. Sometimes it is necessary to place suspected specimens of timber in a sound-proof box before tests can be made, reports F. M. Colebrook of the National Physical Laboratory, England.

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ENGINEERING

Parent of Radium Adds To Life of Electric Bulb

URANIUM dioxide will increase the life span of certain types of electric light bulbs, a patent (No. 2,081,801) just granted in the United States to Wilhelm Dunkel of Berlin-Tempelholff, Germany, reveals. Uranium dioxide is a compound of uranium, the mother element of radium.

The importance of Dunkel's discovery, which he has applied particularly to the powerful incandescent lamps used in movie projection machines and in photography with telling effect, is emphasized by the assignment of the patent to the General Electric Co.

High wattage bulbs use large loads of electric current. When an ordinary bulb of this type is switched on, there is a sudden surge of current into the tungsten filament which is more than it can stand for any considerable length of time. The result is that the filament soon burns out.

Inventor Dunkel has found that if a tiny capsule of uranium dioxide is connected in series with the filament inside the lamp, this surge of current is eliminated. Extra long life is thus attained.

Science News Letter, July 31, 1937

SEISMOLOGY

Strong Earthquake Centers In South America

EQUATORIAL South America was the shock center of the strong earthquake which shook the instruments of seismological observatories in the United States and Canada on Monday, July 19, according to calculations by the U. S. Coast and Geodetic Survey from coded cable and telegraph information supplied by Science Service.

The shock occurred at two hours, 35.7 minutes p. m., eastern standard time. with the probable location of the epicenter fixed at 0.5 degrees south latitude and 77 degrees west longitude. This position places the shock center some 150 miles east of Quito, capital city of Ecuador, and near the Ecuador-Colombia border in an area now in dispute by Peru, with Peru claiming the land.

Seismological stations which detected the quake include those at: Victoria, British Columbia and Ottawa, Ontario; Ukiah, Calif.; Weston, Mass.; Honolulu, T. H.; Fordham University, New York City; Chicago, Ill.; and Georgetown University, Washington, D. C.

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