

PHYSIOLOGY

Kidney Substance Hastens Loss of Salt From Blood

KIDNEYS produce a definite glandular substance which acts to hasten the loss of salt from the blood and other body tissues. Evidence to this effect was produced before the meeting of the Fifteenth International Physiological Congress, by Dr. Benjamin Jablons of New York City, who has extracted it in concentrated form.

Injected into laboratory animals, it causes a temporary but quite definite fall in blood pressure, which can be neutralized by the injection of saturated salt solution. If too much of it is given, the animal is in danger of dying, but this can be prevented by the administration of salt.

The exact chemical nature of the new-found substance is not yet determined. It has, however, been found to be easily soluble in water and concentrated alcohol but insoluble in ether and acetone.

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MEDICINE

Scientists Have Headaches To Check Their Mechanism

SEVERE headaches and pulsations of the brain fluid were linked at the International Neurological Congress at London by the American physicians Drs. Dean Clarke, Heloise Hough and H. G. Wolff of Cornell University Medical School, New York City.

When a headache is most severe the brain fluid pulsations are the largest, according to experiments in which subjects were given temporary laboratory headaches.

The chemical known as histamine was injected into the veins to bring on these experimental headaches. Histamine is created by the body tissues, especially the lungs and the gastro-intestinal tract.

Brain fluid pulsations were measured by inserting a hollow needle into the spinal cord and connecting it to an instrument known as a Frank capsule.

Pulsation changes within the brain, pulsations in the arteries and the blood pressure were all recorded automatically and simultaneously on photographic film for permanent record.

When histamine was injected, the physicians found the arterial pressure increased and the cerebrospinal fluid pressure diminished while at the same time the intracranial pulsations increased and the headache became more severe.

In experimentally produced headache

pain is associated with dilatation and distortion of the intracranial vessels. The sites of origin of the nervous impulses experienced as pain are probably the walls of the intracranial blood vessels and the perivascular tissues. This is further evidence that deformation of the intracranial blood vessels is an important factor in the production of headache as manifested clinically, the Cornell University scientists conclude.

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SEISMOLOGY

Seismograph Records Breaking of Drought

A SEISMOGRAPH, designed primarily for the study of earthquakes, made a record of the breaking of the West's great drought. It also showed the effects of daily warmings and nightly chillings on the earth.

The instrument was designed and built by Mrs. M. M. Seeburger of Des Moines, Iowa, who has taken up the study of earthquakes as a serious scientific hobby.

When it was first put into service, in 1934, the soil was dry and shrunken together to a depth of several feet. So parched was the earth that a crack half an inch wide appeared even in the floor of the seismograph room.

As the heavy rains of spring and early summer fell, soaking the earth and permitting it to swell back to its normally moist condition, the drought-crack in the floor closed up, and the whole ground-level tilted. The tilt was so slight as to be imperceptible by any ordinary means, but the seismograph, designed to be so sensitive as to detect earth tremors from as far away as India or South America, detected the change. Daily the line it traced on its moving sheet of smoked paper departed sharply from the straight course it should have followed and went slanting off at an angle.

Last winter, the instrument detected a daily tilt of the earth in the neighborhood of the Seeburger home. This always set in during the forenoon when the sun had warmed the frozen soil, causing it to expand a little. At night, when the soil chilled and contracted again, the tilt was reversed and the instrument's records went back to normal.

This tilt-recording activity of the seismometer did not interfere with its regular function. Earthquakes are recorded as wiggly breaks in the normal straight line. Tilts are recorded by the departure of the line from its usual direction. An earthquake can be recorded even when the line is slanting off at an angle.

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IN SCIENCE

GENERAL SCIENCE

Science Advisory Board Extended By President

THE SCIENCE Advisory Board, the group of fifteen eminent scientists appointed to respond to requests for advice from the President and Secretaries of the various departments upon scientific questions, has had its life extended until Dec. 1 of this year by an executive order of President Roosevelt. Originally established July 31, 1933, its term of existence was to end July 31 of this year.

The SAB has considered many important problems referred to it by government departments, including those relating to weather, land use, airships, etc. Many of its inquiries are still under way.

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PUBLIC SAFETY

Mine Safety Record Capable of Improvement

NO LESS than 75 per cent. of the 2,500 to 3,000 mine fatalities each year could be prevented by the adoption of methods and apparatus recommended by the U. S. Bureau of Mines. That is the opinion of Daniel Harrington, Chief Engineer of the Safety Division.

Thanks to untiring efforts of the Bureau, the modern miner can be almost as well protected as the knight of old in his massive armor. Exhaustive tests are constantly being made to devise every possible safeguard for the lives of men engaged in coal, metal, and other types of mining. When tests have proved that an article of equipment is relatively safe, it may be listed as "permissible." Personal articles such as "safety clothing" receive recommendation for use.

Mining is a hazardous occupation at best, and not even the Bureau's O. K. of permissibility or recommendation can guarantee absolute safety. No explosive, for example, is absolutely safe. Scientific study can, and has been able to discover which explosives present the least danger of igniting gases and causing ghastly disaster. Those giving out a quick flame when they explode are less dangerous than those exploding with a slow flame like black powder.

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E FIELDS

MEDICINE

Cures Own Nosebleed With Snake Venom

WHEN nothing else will stop the nose from bleeding, snake venom will do it.

This has been the personal experience of two young New York physicians, one of whom, Dr. Simon Dack of Mount Sinai Hospital, describes his own case and that of his friend (*Journal of the American Medical Association*, Aug. 10).

Theirs is the first report of the successful use of snake venom in intractable nasal bleeding, they state. It has been almost two years since they were given moccasin venom by Dr. S. M. Peck, also of Mount Sinai Hospital, New York City, who introduced this form of treatment for bleeding.

One physician's nose bled severely every day. Various treatments were tried without success. Then Dr. Peck injected some snake venom under the skin: he kept up the injections over a period of five months. The nasal bleeding became more and more infrequent, and after the first three weeks it ceased entirely. Dr. Dack has had no more trouble and no more snake venom for two years.

The other physician began to have hemorrhages of the nose every day or two. The attacks lasted for several hours and sometimes for several days. He was given four injections of moccasin venom at weekly intervals. After the first injection the bleeding stopped. It was eighteen months before he had another attack and that was slight. If he has other recurrences, a second course of injections will be given.

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AGRICULTURE

Texas Cows Tipple And Give More Milk

GIVE your cows a drink if you want them to return lots of milk.

And Texas cattle surely do like their liquor!

That is what E. R. Eudaly, dairy specialist for Texas Agricultural and Mechanical College, told a group of farmers meeting in Houston recently.

Obviously, however, cocktail hours for cattle are impractical. Cocktails, just like gin, whiskey, and other hard liquors, would be too expensive.

The thing to do, therefore, is to feed cows water flavored with liquor. This is because they like such water, and will drink more of it than they will water that smacks of the Volstead era. And when cows drink more water they give more milk.

Mr. Eudaly has concocted a special "brew" for cattle. It is simply fermented water out of silage trenches. Its alcoholic content is less than one-tenth of one per cent., but cattle drink a great deal of it, Mr. Eudaly said.

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CONSERVATION

New Dams Provide Refuges For Waterfowl

NEW LINKS in the chain of water fowl and wild life preserves in the United States will be forged when the U. S. Reclamation Bureau completes 11 dams now under construction. Extending from the Mexican to the Canadian borders, the 48 dams constructed during the 33 years of the Bureau's operation are located in 12 western states, according to Dr. Elwood Mead, Reclamation Commissioner.

President Theodore Roosevelt recognized the value of these reservoirs in the preservation of wild life, and since 1908 all reclamation storage lakes have been set aside as wildfowl sanctuaries.

"In the arid West, these lakes are of particular value in the waterfowl conservation program, since in many localities they are the only bodies of water to be found," says Dr. Mead.

This lack of water was the result of the drainage by irrigationists in the early days of the few shallow lakes previously frequented by waterfowl. The Tule Lake in northern California, for example, was partially drained 25 years ago.

Although 11 new dams are now under construction, approximately six more have been planned and will be built in the near future. Two dams are being built on the Colorado river, one on the Arizona-California boundary, and one on the Arizona-Nevada boundary.

Two more are under construction on the North Platte River in Wyoming. Dams are also being built on the Duchene River, Utah; the Ogden River, Utah; the Sun River, Mont.; the Snake River, Idaho; the Malheur River, Ore.; the Grand Coulee River, Wash.; and the Humbolt River, Nev.

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ENTOMOLOGY

Air Attack Used By Troublesome Tree Pest

AIR ATTACK methods are aiding cankerworms, one of the most troublesome of tree pests, to succeed when their crawling invasions are blocked by methods good "against infantry."

For over a hundred years conscientious gardeners, farmers and orchardists have been placing sticky black bands around their trees, thinking that this practice would insure them protection.

Dr. Albert Hartzell, entomologist of the Boyce Thompson Institute for Plant Research, has found that this is not enough, so long as there are winds.

The larva of the cankerworm has strands of silk streaming from it; a wind picks up the larva and the silk strands get tangled up in the tree foliage far above the band. Such larvae have been found on trees as far as one hundred feet from infested areas.

The only answer to this air attack is chemical warfare: they will have to be fought in the treetops with arsenate and rotenone sprays.

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BOTANY

Neither Drought nor Heat Can Damage Cactus Beds

See Front Cover

DROUGHTY summers of the recent past may have had something to do with the rapid rise in favor of cactus gardens. For cacti certainly are excellent things to have on the place when the sun is hot and the wind is dry and there is no rain in sight. They turn their thick hides and bristling spines against an unfriendly world, and sit tight to await better times.

The interesting cactus vista reproduced on the front cover, from a grouping at the famous Missouri Botanic Gardens in St. Louis, gives an idea of what can be done with these desert succulents, plus a few other desert plants. The big round cacti, which contribute so much of character to the picture, are of the "Golden Barrel" variety.

The present high horticultural favor of cacti, however, is not without its disadvantage. Commercial "cacticians" are raiding the desert to an ever-increasing extent, robbing it of its choicest specimens over widening areas. Botanists and conservationists are beginning to express considerable concern and to demand legal protection, lest the desert become a desert indeed.

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