

MEDICINE

Hormone Planted Under Skin Has Lasting Effects

CRYSTALS of ovarian hormone, surgically implanted under the skin in women suffering from abnormal physiological states, have prolonged through periods of from 9 to 14 weeks the benefits that last only a few days when the same remedy has been given by the more usual method of intramuscular injection in oil.

Technical description of the new treatment and its favorable results is offered (*Science*, Aug. 18) by Drs. Udall J. Salmon, Robert I. Walter and Samuel H. Geist of Mt. Sinai Hospital, New York.

The physicians announce that further studies are being carried on in a larger series of cases, to determine the duration of the effect in relationship to different amounts of hormone implanted in order to ascertain the optimal amount of hormone for various clinical conditions.

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ORNITHOLOGY

New Bird Shot Proposed To Stop Duck Poisoning

WHILE most wild ducks die by hunters' shooting, game conservationists have to reckon with those which die by lead poisoning from shot which never hit them. Spent shot, falling to the muddy floor of favored duck ponds may be eaten by the birds searching for food. Going into the fowl's gizzard they remain to bring on lead poisoning.

An ingenious new method of solving this problem has been proposed in a patent (No. 2,167,828) recently granted to Profs. Ralph L. Dowdell and Robert G. Green of the University of Minnesota.

The proposed bird shot, not yet commercially available, would consist of an alloy of lead and a small amount of some other metal like magnesium, barium, zinc, calcium or sodium. All these metals disintegrate faster than lead when they come in contact with moisture, as in a pond or in the fluids of duck's gizzard.

X-ray pictures show that the disintegration of the shot occurs quickly inside the bird and it is eliminated long before it has had a chance to create slow lead poisoning.

To avoid having the same thing happen in wild birds that are put in cold storage and still have shot in their flesh, the scientists suggest that a thin coating of some other metal—like copper or cadmium could be applied.

This outer layer would be quickly ground off in the gizzard. Even a thin coating of lanolin would serve the same end. As soon as moisture attacked the alloy shot it would begin its quick disintegration action.

Major potential trouble in introducing such a new bird shot would be mostly economic for the alloy material, plus its needed outer coating, would be more costly to make than the simple lead shot now used. Also the production of the proposed shot would have to fit into standard methods now in use which consist of dropping molten lead from a high shot tower. Drops of lead contract into the spheres used in bird shot. Alloys of lead have tendencies to form "tails" on the drops prepared in this way which give them less accurate flight.

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DENTISTRY

Lacquering Teeth May Prove Decay Preventive

COATING teeth with a lacquer not unlike that now used on automobiles, furniture and finger nails may be the method of tomorrow for preventing tooth decay. Investigations suggesting this possibility have just been reported to the American Dental Association by Dr. J. T. Gore, Philadelphia dentist.

The lacquer immunizes the tooth enamel against the decalcifying action of acid in the stagnant saliva, which, Dr. Gore believes, is the cause of tooth decay or caries. If his idea proves correct, the dentist, as soon as decalcification appears, would coat the teeth to prevent further decalcification in the affected areas.

Tests with a solution of nitrocellulose and amyl acetate have already been made "in the mouths of a few selected patients" and on extracted teeth.

The extracted teeth after applying the solution and removing all surface coating with powdered pumice, were allowed to stand about 16 hours in a 10% lactic acid solution. The sound enamel on these teeth was dissolved by the acid, but enamel which had been decalcified before the teeth were pulled had been penetrated by the nitrocellulose-amyl acetate solution and stood in relief unaffected by the lactic acid.

The investigations, Dr. Gore reports, are still in a preliminary stage and will be continued. Extensive tests on teeth that have not yet been pulled are planned next.

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IN SCIENCE

AGRICULTURE

Only 10 U. S. Crop Plants Are Native in This Land

MOST of the plants of field, orchard and garden, like the white men who raise and eat them, are of foreign ancestry. Immigrants all, or nearly all. Principal field, fruit, nut and truck crops number 78 (U. S. Bureau of Agricultural Economics, 1937) and are valued at \$4,000,000,000. Of these, only 10 are native to the U. S. A. Practically all had their beginnings in this country in small quantities of seed or propagating material obtained by Uncle Sam's plant explorers who have been at it for a hundred years—a centenary worth celebrating.

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MEDICINE

Muscle Waves Used in Fighting St. Vitus' Dance

MMUSCLE wave records, akin to the now familiar brain wave records and the electrocardiograms of the heart, are science's latest weapon forged for the fight against St. Vitus' dance and similar ailments of which abnormal movements are the chief symptom.

The new weapon is being used by Drs. Paul F. A. Hoefler and Tracy J. Putnam, of Boston City Hospital and Harvard Medical School, in an effort to ferret out more information about the ailments of abnormal movement, such as follow birth injury to the brain and encephalitis.

Patterns of the waves traced by electric potentials from normal muscles, both resting, moving gently and moving forcibly, were compared with patterns under similar conditions from muscles of patients with chorea (St. Vitus' dance), athetosis and the palsy that sometimes follows encephalitis. Significant differences were found which give clues to the particular nerve-muscle mechanism that is deranged in the various ailments, much as a testing apparatus indicates the source of difficulties in a radio set. Effective forms of treatment are available for some of the disorders thus recognized, and others may be found as the underlying difficulty becomes clearer.

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E FIELDS

ASTRONOMY

Twin Telescopic Camera At Lick Observatory

See Front Cover

NOT all the important telescopes are extraordinarily big ones. Interesting and promising great usefulness is a telescopic twin, a double astrographic camera, about to go into service for Lick Observatory, Calif. The photograph on the front cover shows Dr. William H. Wright, Observatory director inspecting the new instrument.

First to be made in America, it takes two 17x17-inch photographs at the same time, which means that one of its photographic eyes can see blue stars brightly and the other can see red stars brightly. Or straight duplicate negatives can be made—handy if astronomer drops one.

It will be used for special studies of the structure and rotation of our own part of the universe, the Milky Way. Made by Warner and Swasey, it is really four-barrelled with two main tubes each 15 feet long and 20 inches in diameter, a 10-inch guiding telescope, and a 3½-inch finder.

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ANTHROPOLOGY

Japanese in Hawaii Differ Strangely in Type

JAPANESE immigrants in Hawaii and their descendants are physically different from Japanese back home.

So marked are the differences, measured and observed by Dr. H. L. Shapiro, anthropologist, of the American Museum of Natural History, that he has an adjective for it—"astounding."

It has been generally assumed that human groups change slowly in type. But here is nature working with dynamic speed. Prof. Franz Boas of Columbia University opened the eyes of scientists to this phenomenon, when he measured children of immigrants in America a few years ago, and showed how they differed from their Old World ancestors. Now, Dr. Shapiro has taken a single current in the waves of human migration, to find out what happens when a group transplants itself on strange new soil.

Japanese immigrant men in Hawaii—almost all of these have come to Hawaii since 1898—are no taller, but they have longer legs and shorter bodies than men living in villages of Japan from which they migrated. Japanese in Hawaii have broader shoulders. They weigh more. The face is longer, jaw wider, relatively, the nose narrower. Hair is less coarse. Women show fewer changes, but, unlike the men, are taller by a full inch.

"In 18 out of 35 traits the immigrants diverged distinctly," is the way Dr. Shapiro contrasts transplanted Japanese with stay-at-homes. Children of these immigrants, born in Hawaii, show additional changes in size.

To set down and analyze these changes, the anthropologist has devoted nearly 400 pages in his newest volume, "Migration and Environment."

But one question, he admits, remains unanswered. Why—why should human beings change so distinctly in a new setting? He suspects that the immigrants may themselves have been a selective group, though their economic and social background offers no clue to this. He also concludes that environment has further modified these people. But how environmental factors can change man substantially within a single generation—that is a new scientific problem, for the future to solve.

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MEDICINE

Nicotinic Acid Used To Treat X-Ray Sickness

ONE of the marvels of modern medicine is the way new chemicals are pushed into service against ills to which they seem quite unrelated.

There is nicotinic acid, not to be confused with poisonous nicotine in tobacco. It is a specific for pellagra, nutrition ill of poverty and ignorance—fat pork, molasses and hominy grits diets. Good diet is the pellagra preventive and permanent cure but nicotinic acid is the speedy emergency remedy. Now it comes to the aid of sufferers from cancer who face more distress caused by X-ray therapy, producing such nausea and vomiting that some prefer to stop treatment than suffer this additional discomfort. Dr. J. Wallace Graham of Toronto (*Journal, American Medical Association*, Aug. 19) found about three out of four patients suffering radiation sickness were aided by nicotinic acid fed daily, one of them markedly and the other two with good results.

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PUBLIC HEALTH

European Sleeping Sickness Reduced in Frequency

EUROPEAN sleeping sickness, a "new" disease that has appeared during post-war years, may be growing weaker, or mankind may be growing stronger against it.

These alternative hypotheses for its declining incidence are offered by the Matheson Commission which has been investigating the disease, under the chairmanship of Dean Willard C. Rappleye of the Columbia University school of medicine.

Epidemic encephalitis, as the disease is technically known, has been attacked with various medical weapons. Newest is benzedrine sulphate, the so-called "pep pills" of exam-cramming students. It is given either alone or in combination with atropine. The combination treatment is said to yield best results. However, a real cure seems still as remote as it did ten years ago.

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PUBLIC HEALTH

Upper Air Over Atlantic Will be Searched for Pollens

HAY-FEVER pollens will be sought for in the airplanes above the North Atlantic, by pilots of Pan American Airways. They will be collecting the irritating grains (if any) on sticky glass slides for O. C. Durham, chief botanist of the Abbott Laboratories in North Chicago, Ill. Nobody has ever known how far out to sea, or how high, the clouds of America's ragweed pollens are blown; this cooperative study is the first effort to find out.

In the meantime, Mr. Durham himself is making a 10,000-mile aerial pollen survey over the land, flying in planes of United and Pennsylvania Central Air Lines. The sticky glass collecting slides he uses are held in a stream-lined version of the "skyhook," invented some years ago by Col. Charles A. Lindbergh.

Ordinarily, pollen grains and other trouble-making particles are left far below, at present-day air cruising levels. However, the summer of 1939 is proving to be a season of most unusual pollen abundance, as Mr. Durham predicted last spring it would be, so that it is of considerable medical and botanical interest to know whether the heavier pollen concentration near the ground has any reflection in the upper air.

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