

# Adrenalin Depots May Form Under Skin

Discovery by Dr. A. B. Luckhardt of the University of Chicago and Dr. Theodore Koppanyi of Cornell University Medical College, that the powerful drug adrenalin forms depots when injected under the skin has opened the way for a new method of treatment of certain diseases.

Adrenalin has long been used to raise the blood pressure, particularly in cases of shock following severe injuries or operations, and because of its relaxing effect on the bronchial muscles it has been used effectively in treating bronchial asthma. However, to produce the desired effect, the adrenalin had to be injected directly into a vein, and for each attack a fresh injection of adrenalin had to be made.

Drs. Luckhardt and Koppanyi have shown in dogs that adrenalin is capable of elevating the blood pressure even if injected beneath the skin, but they have also discovered the conditions under which the blood pressure elevating effect of the adrenalin injected beneath the skin may be elicited. They found that about fifteen minutes after the injection of adrenalin underneath the skin, when the

injected area was gently massaged, there was at once a very considerable and protracted rise in blood pressure.

Deep anesthesia militates against the effective elicitation of this response, and this is the reason why previous investigators failed to get blood pressure rises following adrenalin injection beneath the skin. Drs. Luckhardt and Koppanyi have pointed out that adrenalin injected beneath the skin remains there for some time, and it was even possible to produce blood pressure rises from massaging such areas which had been injected twenty-four hours before the massage.

Dr. Koppanyi has lately shown that adrenalin injected underneath the skin, with the massage of the injected areas, is just as effective in man as in dogs, and in both cases adrenalin forms a depot underneath the skin, the massage of which results in a blood pressure rise for over twenty-four hours. It was quite obvious that this observation could be applied in the treatment of various diseases in which the administration of adrenalin is desired. There are quite a number of such conditions, the most important of them being the

so-called traumatic shock, which consists of dangerously lowered blood pressure sometimes following major injuries, operations, etc. A New York surgeon, Dr. Howard Lilienthal, has shown that by using the method of Drs. Luckhardt and Koppanyi, he could restore a patient suffering from traumatic shock.

Bronchial asthma, hives, and hay fever also respond very readily to adrenalin. Before the method of Drs. Luckhardt and Koppanyi was known, it was necessary for each attack of these diseases to be checked by a new injection of adrenalin. The method of massaging the injected areas does away with that very often inconvenient procedure, and during the course of a day or two only one adrenalin injection is necessary, and the patient himself may be instructed to massage with a piece of cotton the injected area and thus get the benefit of the full therapeutic effect of adrenalin. Clinical reports have already substantiated the effect of the massage of the adrenalin-injected areas in these diseases.

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## European Pine-Shoot Moth in Florida

The European pine-shoot moth, first reported in the United States fifteen years ago, has been discovered in Florida by Perkins Coville of the United States Forest Service. The insect was identified by August Busck, U. S. National Museum specialist on lepidoptera.

Up to this time the European pine-shoot moth has never been recorded south of Washington, D. C. It was first discovered in Long Island, and later spread to the Middle Atlantic States and through the New England States to Southern Canada. In the North it seems to confine itself in general to the ornamental trees, and for that reason has not been a serious pest. In parts of Europe, however, it is very serious. It is feared that it may prove very harmful should it get firmly established in the South because of the fact that the long growing season may enable the moth to develop four or five generations a year.

The specimen identified by Mr. Busck was found infesting immature

cones taken from a long-leaf pine growing near the Starke, Florida, branch of the Southern Forest Experiment Station. The tree had been used in cross-pollination experiments and removal of pollination bags from the flowers had disclosed the fact that a number of small cones were badly infested.

Mr. Coville describes the larva or caterpillar of the European pine-shoot moth as dark brown, with a deep black head and a black shield on the upper part of the first division of the body behind the head. Allied species are lighter in color. The full-grown larva is two-thirds of an inch in length.

The Department of Agriculture has made the request that every one in a position to do so watch for signs of the insect and its damage and send any material showing symptoms resembling the description of the pine-shoot moth infestation to the Bureau of Entomology of that Department at Washington, D. C., for examination and identification.

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## Three Factors for Teeth

To have good teeth that will not decay easily one must eat food that has plentiful amounts of calcium, phosphorus and vitamin D, Mrs. May Mellanby of Sheffield, England, found as a result of feeding experiments with animals and children.

The substances that are necessary for the development of good teeth are also necessary for the development of good healthy bones, Mrs. Mellanby stated in a report to the American Dental Association. In rickets, when the bone development is poor, the same defects appear in the structure of the teeth. Children suffering from rickets also had many decayed teeth, while in children who were not rachitic tooth decay was rare, Mrs. Mellanby observed.

Oatmeal and maize and other cereals and cereal products are good sources of calcium and phosphorus, but unless irradiated they interfere with calcification, because they contain substances antagonistic to vitamin D, the "toxamins" demonstrated by Mrs. Mellanby's husband, Dr. E. Mellanby.

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