

## PHYSIOLOGY

# Vital Glands Preserve Life By Keeping Up Blood Volume

**W**HY THE CORTEX of the adrenal glands is of literally vital importance to the body has just been discovered by Drs. W. W. Swingle, J. J. Piffner and their associates, H. M. Vars, P. A. Bott and W. M. Parkins of Princeton University. In a report to *Science*, these investigators explain that the hitherto unknown function of the cortex of these small glands is to keep the blood up to normal volume.

When the hormone of the adrenal gland cortex is absent, due to injury or loss of the glands, fluid is continuously lost from the circulation. The result is that the body is unable to maintain its normal volume of blood and eventually death follows.

That the cortex of the adrenal glands is necessary to life has been known for some time. Addison's disease, due to injury to or disease of adrenal cortex, is fatal, but patients may be kept alive with extracts containing the powerful hormone of the adrenal cortex. Drs.

Swingle and Piffner were among the first to perfect such an extract, which has since been used to save the lives of sufferers from Addison's disease.

Now these investigators find that the function of the adrenal cortex is to maintain and regulate a normal circulating volume of fluid within the veins and other blood vessels. Their explanation is based on observations of blood pressure, blood volume, heart rate and similar conditions when little or no adrenal cortex hormone is being supplied to the body.

Shock, resulting from injury or surgical operations, may be explained in the same way as the results of lack of cortical hormone, and the symptoms of the two conditions are strikingly similar, it is pointed out. The Princeton investigators therefore suggest that in shock the adrenal glands are affected, and that this condition may be successfully treated by injections of adrenal cortex hormone.

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## MEDICINE

# Research Shows How Copper Aids Iron in Curing Anemia

**T**HE PART which copper plays in curing anemia is shown by recent work of C. A. Elvehjem and W. S. Sherman of the University of Wisconsin. Four years ago these same workers helped Prof. E. B. Hart prove that copper as well as iron was necessary to raise the level of the hemoglobin in the blood when it had been lowered by milk diets. Even inorganic iron was found effective when a little copper was added.

The way in which copper achieves its function is now made clear.

When iron alone is fed to young rats that have been made anemic, the hemoglobin of their blood does not increase, but iron is stored in the liver and spleen in proportion to the amount fed. But if a little copper is added, then some of the stored iron is made available for the body needs, is converted into hemoglobin, the iron-containing pigment of the blood which enables it to carry oxy-

gen. If copper and iron are given together, the formation of hemoglobin takes place first and only the excess of iron is stored in the liver.

Thus copper is found to be necessary not for the assimilation of iron but for its conversion into hemoglobin so that it can be used by the body. Organic iron is just as ineffective as inorganic iron when copper is absent; in fact, even when copper is added, regeneration of blood is slower with organic iron than with inorganic. Plain ferric chloride gave five times as much storage of iron in the liver as did the complex hematin.

The old-fashioned carbonate of iron when combined with a little copper will prove of more help to sufferers from anemia than the more recent complex and expensive forms of iron. This should mean good news to both physicians and patients.

The anemia which is cured by cop-

per and iron is not pernicious anemia, but another type caused either by loss of blood or by inadequate diet.

Prof. Hart has just been granted a broad basic patent on inorganic compounds of iron and copper for the prevention and treatment of anemia. The patent has been assigned to the Wisconsin Alumni Research Foundation.

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## MEDICINE

# Pollen Extract Oxidized For Hay Fever Treatment

**G**OOD NEWS for hay fever sufferers appeared in a report to the Society of American Bacteriologists.

Some of these patients cannot be desensitized to the particular pollen that causes their trouble because hypodermic injections of the pollen extract may be followed by reactions of more or less severe nature. George E. Rockwell of the University of Cincinnati reported a method of treating such a pollen so that it would not give reactions and still would be potent to prevent fever.

Ragweed pollen, common cause of the affliction, was oxidized by treatment with hydrogen peroxide. The hydrogen peroxide was then removed by the use of platinized asbestos. This oxidized pollen extract gave little or no skin reaction when sensitive individuals were tested. It was used in the treatment of three hay fever subjects. There were no reactions, so the dosage could be increased much more rapidly than would have been possible with regular ragweed pollen extract. The clinical results were very satisfactory.

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## ANTHROPOLOGY

# Man Has Too Much Brain And Not Enough Jaw

**D**ENTAL degeneration is undermining the health of modern man, who seems to have more brain and less jaw than he needs. This is the opinion Dr. E. A. Hooton, Harvard University professor of anthropology, voiced in an address to Harvard dental students.

"Human evolution is largely a matter of brain expansion and jaw reduction," Dr. Hooton explained. "It has reached a stage where we now have bigger and possibly better brains than we can use, and smaller and worse jaws than the health of the individual and the preservation of the species demand."

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