



500,000 WATTS

*This power, ten times that of the largest American broadcasting stations today, will be radiated from experimental transmitter W8XO nearing completion by the Crosley Radio Corp. at Mason, Ohio. A new 831-foot vertical radiator type antenna is shown towering above the plant. The new transmitter, a bold step toward "super-power" broadcasting, will first operate on test from 1 a. m. to 6 a. m. and is later expected to transmit broadcasts regularly.*

process of improvement, yields of from 250 to 300 milligrams of vitamin in crystalline form have been obtained from 50 kilograms of rice polish. While this amount seems very small when considered in terms of large scale production of ordinary substance, since 100 milligrams is only one and one-half grains, roughly, and 50 kilograms is over 100 pounds, it represents from five to fifteen times the yield obtained heretofore by other investigators.

Lack of this vitamin causes nervous disorders, among them beri-beri. While the amounts necessary for health can be added to the diet by ordinary foods as whole grain cereals, chemists need to have rather large supplies of it in crystalline form for further investigations as to its chemical composition and effects on the body. Drs. Williams and Eddy hope that by their method, several steps of which have been carried out on a large scale according to a factory type of operation, they will be able to make the vitamin available in quantities of several grams.

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## BIOCHEMISTRY

# Men Are Walking Drugshops, Dr. Abel Declares in Address

## From Human Organs, Pharmacist Can Prepare Arrow Poisons That Would Have Delighted Primitive Warriors

"**W**E OURSELVES are walking drug shops. An experienced chemist or pharmacist would have no difficulty in preparing arrow poisons from some of our own organs that would have delighted the heart of primitive man."

These perhaps surprising statements were among the many facts about poisons that Dr. John Jacob Abel, emeritus professor of pharmacology at the Johns Hopkins Medical School, told members of the American Association for the Advancement of Science in his address as retiring president.

Dr. Abel emphasized the chemical nature of disease, saying that most bacteriologists now believe all infectious diseases are really poisonings. For some diseases such as diphtheria and lockjaw, this has been proved. It is known that these diseases are caused by a poison produced by the "germs" or bacteria. In other diseases, medical scientists suspect that the disease is really a poisoning from some substance produced by the "germs," even though they have as yet no proof for this belief.

The first physiological or pharmacological experiment made by man was probably the smearing of arrows and spear heads with poisons, he said.

"Stinging insects and venomous serpents were no doubt the first among animal forms to invent hypodermic injections, a procedure which was introduced into medical practice only in the years 1845 to 1856," he continued.

The poisons which these insects and snakes produce were not developed solely for self-protection, however. The snake's venom is indispensable to its health, besides containing ferments necessary for its digestive processes. Similarly, the poisons of bees and wasps appear to aid in the development of their eggs after they have been fixed on them.

"Nature has not affixed a poison label to any particular substance or class of substances," Dr. Abel said. "The pharmacist does that."

Among the substances in man's own body which may be poisonous in certain doses are insulin, which controls sugar utilization and is necessary for life and health; adrenaline or epinephrine produced by the adrenal glands and a valuable medicine in certain conditions of diseases; and the hormone produced by the parathyroid glands, excessive amounts of which cause calcium to be removed from the bones at such a rate that they soon cannot support the weight of the body, besides causing other conditions leading to death.

Vitamins, which Dr. Abel characterized as plant hormones, are also poisonous in large doses, although necessary to life in certain amounts.

"From the wider biological view, we should not think of poisons as being inherently more malevolent than any of the other agents or influences of our environment to which we are constantly exposed," Dr. Abel stated. "I incline to the belief that no living cell exists whose contents or metabolites are not toxic to some other living cell."

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## ARCHAEOLOGY

## Saul's Fortress-Palace Found At Gibeah

**A**RCHAEOLOGISTS have at last identified the fortress of King Saul, the walled capital from which the Bible hero went out time and again with his soldiers to wage war against the enemies of Israel. Success in identifying the ruins of Saul's palace-fortress is reported by Prof. W. F. Albright, director of the American School of Oriental Research in Jerusalem.

The site is known today as Tell el-Ful. Prof. Albright began excavating there twelve years ago. But his work was interrupted before the history of the fortress could be traced. That the site was really Gibeah, the capital of King Saul, has long been accepted as presumably true. But like most Bible sites, this one had a number of stages