

IN the University of London, Dr. Edward Barclay-Smith, of Cambridge, succeeds Professor Waterston in the chair of anatomy at King's College, and Dr. E. P. Cathcart, of Glasgow, succeeds Professor Leonard Hill in the chair of physiology at London Hospital Medical College.

#### DISCUSSION AND CORRESPONDENCE

##### EFFECT OF CYANIDE OF POTASSIUM ON TREES

TO THE EDITOR OF SCIENCE: My attention has been attracted to an article in your columns by Professor H. A. Surface relative to the use of cyanide of potassium for eliminating insect attacks on trees. While I have not investigated the claim of the firm at Allentown, Pennsylvania, referred to in his article, and know nothing about their process, however, from my own results with cyanide of potassium, especially on elms and black locusts, I am convinced it is a valuable remedy.

The article above referred to gives the general impression that cyanide of potassium is the cause of tree death as well as various staining effects found in the bark, cambium, etc. My opinion is that the staining comes from the reaction between the tannic acid found in all trees and the iron found in this so-called "tree food" in the form of iron sulphate. It is well known that when solutions of tannic acid are brought into contact with iron or any iron salt, dark colored compounds resembling ink are formed. These are very permanent dyes and no doubt account for the dark color observed.

The cyanide of potassium as I have used it for years in eliminating borers from various trees has never caused any staining, nor have I ever known of its killing or in any way injuring a tree. I have been using it and prescribing it for the use of others for about twelve years in connection with my forestry work, and we have saved the lives of thousands of trees by means of it.

Large groves of thrifty elms and black locusts in Kansas and other parts of the west have been completely rescued from the attacks of boring and girdling insects by means of

cyanide of potassium, and this article is the first intimation I have ever had to the effect that it is deleterious to tree growth. I am strongly inclined to feel that the blame is not properly placed and that a highly useful chemical for insect eradication is being condemned because of damages produced by other substances.

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##### GOSSYPOL—A TOXIC SUBSTANCE IN COTTONSEED. A PRELIMINARY NOTE

We have separated from cottonseed kernels a substance which appears to be identical with the substance which Marchlewski<sup>1</sup> separated from crude cottonseed oil and called gossypol.

We have administered in various ways, to rabbits, gossypol as prepared by us and have found it toxic in every case.

We have found as did Marchlewski that gossypol is quickly oxidized in an alcoholic solution of sodium hydroxide.

In a previous paper from this station<sup>2</sup> it was stated that "(alcoholic) alkaline treatment, very greatly diminishes if it does not entirely remove the toxic properties of the (cottonseed) meal," and it was suggested that the beneficial effect "may be due to hydrolysis or to the formation of a sodium salt or to some other change not yet determined definitely."

We now offer as an explanation that gossypol is a toxic substance and that its oxidation by an alcoholic alkali renders it nontoxic and thus diminishes if it does not entirely remove the toxic properties of cottonseed meal.

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#### SCIENTIFIC BOOKS

*Bausteine zu einer Biologischen Weltanschauung.* Von JAKOB, BARON VON UEXKÜLL. München, F. Bruckmann A.-G. 1913.

<sup>1</sup> *J. für Prakt. Chem.* (1899), 60, p. 80.

<sup>2</sup> Withers and Ray, *SCIENCE* (1912), 36, p. 31.