crasies of the individual or to temporary derangement of the metabolism giving rise to pathological states not recognizably associated with beriberi. To appraise this possibility we enlisted as medical associate Dr. Martin G. Vorhaus. Clinical trials have been made in polyneuritis of pregnancy, colitis, nutritional edema, gastro-intestinal atony, polyneuritis of undiagnosed origin, etc., as indicated in part elsewhere.[2] Study of these conditions is being extended with gratifying results.

Considerable evidence also exists as to a relationship between vitamin $B_1$ and carbohydrate metabolism.[3] In view of this the effect of the administration of large amounts of the pure vitamin in human diabetes is being studied. The early results are extremely interesting and give further evidence of the significance of $B_1$ in metabolism and its possible therapeutic use in cases of deranged carbohydrate utilization. When these results have more fully matured they will be reported by Dr. Vorhaus and collaborators through the usual medical channels.

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## A PHYTOSTEROL AND PHYTOSTEROLIN FROM THE SWEET POTATO

DURING the process of isolation of carotene from the sweet potato *Ipomoea Batatas* Poir., a phytosterol and a phytosterol glucoside or phytosterolin were separated. Since these substances have not been previously reported from this source, it seems desirable to record them in the literature.

The phytosterolin was separated from a concentrated solution of the sweet potato pigment before saponification, and the phytosterol was removed from a concentrated extract of the material remaining unsaponified by alcoholic potassium hydroxide.

After repeated recrystallization of the crude phytosterolin from dilute pyridine it melted at 285° to 286° and gave an acetate melting at 165° to 165.5°. With careful manipulation a positive Salkowski sterol reaction and an alpha naphthol test for carbohydrate were obtained on the parent substance.

After two recrystallizations of the phytosterol from ethyl alcohol-ethyl acetate mixture it melted at 136.5° to 137° and gave both the Liebermann-Burchard and Salkowski reactions for sterols. On treatment with acetic anhydride an acetate was formed which melted at 129° to 129.5°.

From these data it is concluded that the phytosterol of the sweet potato consists chiefly of sitosterol and that the phytosterolin is a sitosterol glucoside.

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[2] Carnegie Inst. Year Book, No. 33, 297, 1934.

[3] M. Labbe, F. Nepveux and J. D. Gringoire, *Bull. Acad. Med.*, 109: 689, 1933; C. A. Mills, *Am. Jour. Med. Sci.*, 175: 376, 1928.

## THE APPLICATION OF ARTIFICIALLY IONIZED AIR

IN the first volume of transactions from the Central Laboratory for Scientific Research on Ionification, entitled "Problems of Ionification," and edited by Professor A. L. Tchijevsky,[1] is presented an extensive review of the theory of ionization, the general biological influence of ionization on animals and the results of experimental ionization of chickens.

The ionization of air (or the accumulation of negatively charged particles in the air) has been done by the use of high-potential, 100,000 volts, 0.5 milliampere, frequency at least 3,000 cycles per second electric current, transformed from the original source of 110–220 volts D.C. This has been considered as one of the cheapest and the most convenient methods of artificial ionization of air on a large scale. There were produced from about 400,000 to 600,000 negatively charged particles per $cm^3$ (as compared with ordinary air, which has about 2,000) by brush discharge ("electrofluvial luster") from the negative electrode suspended from the ceiling at a distance of about $3\frac{3}{4}$ feet from the floor, or about 35 cm from the layer of treated eggs.

The experimental results on the influence of ionized air on the chicks and mature birds, as well as on the eggs during the incubation, though they were obtained under highly unfavorable experimental conditions and with a low quality of experimental material, in most cases were very significant and convincing.

On the basis of these experiments as well as in the consideration of the studies presented in Volumes II, III and IV, on other domesticated and wild animals, insects, bacteria, plants, seeds, etc., it was concluded that ionized air prevents weak individuals from early death, increases the growth of birds and their productiveness (egg laying), helps to assimilate food, increases general metabolism, raises physical activity, improves reproduction, favorably affects the composition of blood, increases the resistance of an organism and has preventive and therapeutic value in some diseases (such as avian tuberculosis). From these one can see a definite biological influence of ionized air,

[1] A. L. Tchijevsky, *et als.* "Problems of Ionification," 1: 1–487, Voronezh, U. S. S. R., 1933 (in Russian).