duced from the outside, but from viruses which originated as mutants in the tissues involved in the spots.

It was pointed out in an earlier paper[1] that plants having pure yellow mosaic are rarely observed in commercial tobacco and tomato fields, and they were rarely seen among the many mosaic-diseased *Nicotiana glauca* plants growing in the Canary Islands. These observations are now explained on the basis that the common-mosaic virus greatly restricts the size of the yellow-mosaic mutation spots and also the amount of the yellow-mosaic virus, thus decreasing the chances for its spread to other plants. A relatively large amount of the common-mosaic virus is thus maintained in the infected plants and this virus prevents the establishment of tobacco yellow-mosaic virus which might enter these plants from the outside.

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IODINE THERAPY AND GOITRE

MAY I add a mite[1] with respect to the early history in the use of iodine in the successful treatment of (endemic) goiter. I refer to Moses Gunn's (1822–1891) famous prescription, which every Rush Medical College graduate is quite familiar with.

Dr. Moses Gunn went to Rush Medical College Chicago, Ill., (from Ann Arbor, Michigan), in 1867, as head of the department of surgery and as the successor to Dr. Daniel Brainard.[2] Finding a high incidence of goiter in the Chicago area he prescribed his now famous "three eight" mixture, as follows:

℞

Iodi	gr. viii
Potassii iodidi	ʒ viii
Syrupi sarsaparillae ad f	℥ viii

No doubt the supposedly "alterative" action of iodine was uppermost in the mind of Dr. Moses Gunn. At any rate, this early practitioner noted the beneficial effects of iodine therapy in the treatment of hyperplastic goiter. And, it should be noted, long before Marine (1907) put iodine therapy for this condition on a truly scientific basis!

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SPECIAL ARTICLES

THE EFFECT OF ALTERATION ON THE LEAD-URANIUM RATIO AND THE CALCULATED AGE OF WILBERFORCE, ONTARIO, URANINITE

IN order to determine the effect of leaching on the lead-uranium ratio of uraninite, a determination of the lead, uranium and thorium content of three zones of a single crystal of Wilberforce, Ontario, uraninite has been made. Instead of grinding a large specimen of the mineral to uniformity and analyzing the then homogeneous material, as is usually done in age determinations, a method of carefully removing successive layers from the crystal was used, followed by analysis of the outermost layer, middle layer and innermost layer or core.

A crystal weighing about twenty-four grams was selected. It was apparently altered to some extent, as the color was reddish brown, although the cubo-octahedral structure of the crystal was still intact, this in spite of the great age of the mineral and the large amount of lead which had been generated in the crystal since its formation.

The crystal, which had previously been cleaned from any superfluous material, was weighed, treated with dilute nitric acid until approximately one third of the mass was removed, washed, dried and reweighed. The remainder of the crystal was gently treated with acid until another third was dissolved. Finally, the core was dissolved. Aliquot portions of each of these resulting solutions were analyzed for lead, uranium and thorium by methods which will be described in a later paper.

The outside section included all of a shell, perhaps from one to two millimeters thick, of highly altered material which covered the entire surface of the crystal and some of the black material which constituted the remainder of the crystal. All the middle layer and core appeared homogeneous and pure black in color.

From the data obtained from these analyses, the "lead ratio" and the corresponding age of each section of the crystal could be calculated by means of the formula:

$$\text{Approximate age} = \frac{\text{Pb}}{\text{U} + 0.36\ \text{Th}} \times 7600 \text{ million years}$$

The age as calculated by this approximate formula is somewhat higher than that given by the more exact logarithmic formula, but is used here in order that it may be compared with the results of earlier investigations of the age of this mineral.

The average results of several analyses of each section are given in the following table:

[1] McCay, SCIENCE, 82: 2128, 350, 1935; McClure, SCIENCE, 82: 2129, 370, 1935.

[2] "History of Medicine and Surgery and Physicians and Surgeons of Chicago, 1803–1922," p. 61. The Biographical Publishing Co., 133 W. Washington Street Chicago, Ill., 1922.