

to be done is the determination of the condition of the water—a tedious task—and the quantitative analysis of the mineral from Utah, hence it may be some time before we shall feel warranted in presenting our completed work. It will be better to describe all the minerals in one comprehensive paper, than to publish now incomplete details to be supplemented later.

Besides the red calcium vanadates we received from Messrs. McNaughton and McMillen a black friable sandstone, also from the Joe Dandy claim. It is not carbonaceous as one might suspect, but the black color is due to a vanadium mineral occurring in indistinct prisms (whether this is a calcium compound or not is as yet undetermined). It is somewhat doubtful if chemical study will reveal its exact composition, for other vanadium compounds are present with the black one, as is indicated by the existence of vanadium in three states of oxidation, corresponding to V_2O_5 , V_2O_4 and V_2O_3 . The greater part of the vanadium is in the V_2O_4 state, and to this the color of the rock seems to be due. In the course of time the specimens have taken on a greenish cast, but on freshly broken surfaces the color is still black.

It is much to be desired, both from scientific and commercial standpoints, that a careful geological exploration of the uranium-vanadium bearing areas of western Colorado and Eastern Utah be undertaken at an early date. These areas are being continually extended as new discoveries are made.

BOTANY.—*A new generic name for the sapote.* O. F. COOK,
Bureau of Plant Industry.

Much confusion has attended the application of generic names to two important tropical fruit trees, the sapote and the sapodilla, the latter being the source of the chicle gum of commerce. Additional facts that tend to simplify these nomenclatorial complications have come to light during a recent review of the subject. The final result is to show that the generic name *Achras* belongs definitely to the sapodilla tree, and that a new generic name is required for the sapote. The reasons of these conclusions may be summarized as follows:

The Linnaean name *Achras* is a direct substitute for Plumier's genus *Sapota*. It was based by Linnaeus in his *Genera Plantarum* on Plumier's figures of an oval-fruited form of the sapodilla. The first binomial use of *Achras* in the first edition of the *Species Plantarum* is also typified by a reference to Plumier, so that there is no alternative to *Achras zapota* Linnaeus as the name of the sapodilla. In the second edition of the *Species Plantarum* Linnaeus made the mistake of supposing that Plumier's oval fruit was a sapote, and the erroneous synonymy of this work has misled many later authors.

The retention of Plumier's name *Sapota* in Miller's *Gardener's Dictionary* (7 Ed., 1759) does not justify a revival of this name, since Miller followed Plumier in basing the genus on the sapodilla, tho the sapote was included as a second species. Some writers might consider this a reason for transferring the name to the sapote, but if such changes in the applications of pre-Linnaean names are to be permitted no advantage of stability is gained by accepting the substitutions made by Linnaeus. Tho such cases have not been the subject of direct nomenclatorial legislation, they are covered by implication under the rule that the substitution of a new generic name does not change the type of a genus. This seems to preclude the idea that the type can be changed informally, merely by referring other species to the genus. In other words, the use of a generic name for species that are not congeneric with the original type should not be allowed to change the application of the name. This is also partially recognized under another rule that provides for the selection of types of genera adopted from nonbinomial literature from those of the original species that receive names in the first binomial publication. The effect of this provision is to allow Linnaeus to change the applications of names as well as to substitute new names, so that all of the genera of Linnaeus' *Genera Plantarum* can be typified from the species placed under them in the *Species Plantarum*. But to extend this freedom to other authors who reverted, often quite casually, to the pre-Linnaean generic names, is to lose the practical advantages of the method of types. The recognition of a pre-Linnaean genus by a post-Linnaean author, tho it may

be supposed to revive the name under the binomial system, should not affect the application of the name.

The earliest binomial name applied to the sapote seems to have been Jacquin's *Sideroxylum sapota*.¹ The descriptive phrase accompanying this name refers to the compound calyx or involucre which is a peculiarity of the sapote, and there is also a citation of Sloane's plate of "The Mammee Sapota tree" of Jamaica. Jacquin's species was adopted by Linnaeus in the second edition of the *Species Plantarum*, but Jacquin's specific name would have become a homonym if transferred to the genus *Achras* and was replaced by *Achras mammosa* Linnaeus.²

Neither *Sideroxylum* nor *Lucuma* is available as a generic name for the sapote, both being based on species that are no longer treated as congeneric with this tree. The name *Vitellaria*, borrowed from Gaertner and applied to the sapote by Radlkofer, has been rejected by later writers and remains a hyponym, not having been associated with an identifiable generic type. Two other generic names, *Calospermum* and *Calocarpum*, proposed for the sapote by Pierre, prove to be homonyms.

A new generic name *Achradelpha* is accordingly proposed, with *Achradelpha mammosa* (Linnaeus) as the type species.

A more extended statement of the case, with discussions of some of the nomenclatorial principles involved, has been offered for publication in Contributions from the U. S. National Herbarium.

BACTERIOLOGY.—*The destruction of bacteria in milk by ultraviolet rays.*³ S. HENRY AYERS, and W. T. JOHNSON, JR. Dairy Division, Bureau of Animal Industry. Communicated by Karl F. Kellerman.

During the past few years much attention has been given to the bactericidal action of ultraviolet rays. Numerous investigators have found that the ultraviolet rays of short wave length,

¹ Enumeratio pl. Ins. Carib. 1760.

² Species Plantarum, 2 ed. 1: 469. 1762.

³ The complete data obtained in this work will be published as a bulletin of the Bureau of Animal Industry.