

Royal College of Physicians of London in some respects, such as having four censors of whom one is the senior, and in having moved its place of residence on several occasions. To celebrate the twenty-fifth anniversary of the last move Dr. G. E. de Schweinitz, the senior censor and former president, has, with the assistance of the librarian, revised and brought up to date the account of the college he wrote more than twenty years ago, when he was president for the usual span of three years. The college, which has about six hundred fellows all told, is fortunate in the generosity of its alumni, especially S. Weir Mitchell and W. W. Keen, and in its fine house has many 'private study rooms,' where the fellows and their guests, sur-

rounded by the volumes they require, work without interruption. There are a number of rooms named after eminent benefactors, such as the Norris room, which contains more than twelve hundred current periodicals. The library, with 173,000 volumes, has for ten years purchased annually fifteen hundred books, and possesses more than four hundred incunabula. It is the proud owner of forty-four out of the fifty-four recorded editions of William Harvey's works, the copy of the Bologna edition (1697) of the 'De Motu Cordis' being the only one now known to exist. Another unique volume is Thomas Cadwalader's 'Essay on West India Dry Gripes,' with the original two prefaces, one of which was suppressed."

## DISCUSSION

### DISTRIBUTION AND UTILIZATION OF FLOOD WATERS

THE main objective of the Nakai Bito (Mexican Springs) Experiment Station is to increase the human carrying capacity of the Navajo lands, not only to where they will take care of the present increasing population, but to a point where they will provide a livable place for future generations. Since there are at this time some 45,000 Indians living on this land—and they must continue to stay on it, as there is no more land for them—it means that we who are in charge of the rehabilitation of the area must concentrate on a land management plan which will develop every natural resource to its fullest possibility.

Accelerated erosion is not only washing away the fertile lands, but it is causing the lowering of the water tables and changing the soil moisture tables so that vegetation has little chance of assimilating even a small part of the precipitation. The essential elements that go to make up the plant food in many places are far below the reach of the feeding roots of vegetation, and the moisture does not lie on the surface long enough to make available the foods necessary to sustain a ground cover. This applies to the cultivated lands which were normally—perhaps I should say formerly—used by the natives of this country.

The location of prehistoric ruins and the abandoned hogans of the present occupants of the Navajo country would indicate that the center of population was, at one time, in the big alluvial valleys. A recent survey of cultivated lands on and adjacent to the Mexican Springs Experiment Station showed that by far the greatest amount of land now farmed by the Navajos is in the mountain valleys up to, and even above, 8,000 feet in altitude. This change in the

center of population has been brought about by erosion, and this erosion has been caused by the destruction of the vegetative covering on the steep slopes, thus creating an abnormal concentration of water in the water courses.

A number of old Navajos have told me that as recently as twenty-five years ago they cultivated farms on the deltas of the Nakai Bito Wash. Now its precipitous sides are from twenty to thirty feet deep. Now there is a perfect drainage system created by two parallel washes and several laterals leading out through the deep alluvial soil of the valley. Since the destruction of this land was brought about by the concentration of water which should have been normally distributed and absorbed, we are attacking the problem by preventing as nearly as possible the concentrating of water, using diversion dams and spreading systems which will, we believe, not only distribute it over a very large area but will actually hold it until the soils can absorb it. This network of flood water utilization devices is being put into effect wherever it is possible to find a level piece of land or a gentle slope where waters can be diverted from the channel. It may be not more than a quarter of an acre at the head of a watershed, or it may be a thousand acres in a wide-spreading valley; but the idea is at all times to keep the water from ever reaching the main water course except via the underground passage.

The water may be spread by means of earthen dikes which may be, in some cases, a mile in length with weep-holes at intervals to carry a given amount of water; or it may be spread by a diversion dam with a submerged rock spillway from 200 to 600 feet long and built on a dead level so that the water will not be able to "pile up" as it proceeds down the valley. At certain danger points where the water might concentrate, smaller earthen dikes are built, or woven wire

fences, burlap-covered, are erected to get a better distribution. Meanwhile, the growing vegetation begins to bind the soil so that, with conservative utilization of plant life, there is little danger of washing after the first year.

Last year, the volume production of grass below one such diversion dam on our project was increased to nearly five times that on adjoining lands where no water was spread. The production in a Navajo corn field receiving flood irrigation through this water-spreading device was increased from a probable twenty bushels to about forty bushels per acre.

The cost of collecting and distributing these flood waters is comparatively small, amounting to but a few dollars per acre. The effects are far reaching. The washes from this eroded area carry a silt content of from twenty-five to thirty per cent. In the natural course of events, this is dumped into the San Juan River, and from there into the Colorado. It doesn't take much imagination to see what this constant depositing will do to the Boulder Dam. Engineers have stated that the very life of the dam depends upon the amount of silt deposited above it, and by far the greater part of it probably comes from the watershed of the San Juan and the Little Colorado Rivers. It is gratifying to know that while we are striving primarily to rehabilitate the lands for the Navajo, we are at the same time helping in the preservation of one of the greatest irrigation projects in the United States.

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### NAMING POTTERY TYPES, AND RULES OF PRIORITY

It is a curious psychological fact that a pottery type with a name can be visualized. One without a name seems intangible. As an example, two-color yellow ware means little, whereas Sitkiatki polychrome to the initiated brings up a distinct picture in the mind, a picture of all the attributes of the type. Besides, a type with a name can be referred to without repeating a partial description every time it is mentioned. These are the reasons for naming pottery types, and the method proposed at Pecos Conference in 1927 (*SCIENCE*, 66: 489) seems to be the best method and has in consequence been widely accepted. But we must go farther than that.

The necessity for having rules to follow in the naming of pottery is evident from the large synonymy that has developed. In the Southwest about 250 pottery types have been described. In one ware, which contains sixteen types, there are fifty-four

synonyms, making seventy names to be remembered by an investigator working on that ware. One type, Flagstaff Black-on-white, has seven synonyms. Almost every author that has worked in the Southwest has felt free to give names as the whim pleased him, without reference to what has been done in the past, and one author has called the same pottery type three different names in three different publications. The need for a system is evident.

The authors of this paper are working on a handbook of northern Arizona pottery types and propose the following rules to determine the name that they will use. As these rules follow, in general, those that have been developed by biologists since the time of Linnaeus we see no reason that they can not, in a modified form, be applied to ceramics. Certainly some sort of a system is necessary.

In order to prevent a useless duplication of the names of pottery types we propose the following rules:

(1) A name of a type consists of a geographical name, followed by a descriptive term. Example: Sitkiatki Polychrome. This binomial principle was decided at the 1927 Pecos Conference (*SCIENCE*, 66: 489, 1927). Gladwin and Gladwin (*Medallion Papers*, No. 7, 1930) state that "the geographical name need not be the spot where the type was first found, nor its area of greatest density but would simply serve as a label for reference." This idea can not be too greatly stressed. Many feel that if a type is named for some place on the periphery of its area of distribution it should be changed, as our knowledge increases, to a locality in the center of the area. This only leads to endless confusion and a useless synonym. The first name given, if properly constructed, and, if the description is clear, should stand.

(2) The geographic name must not be combined with a prefix (Example: Proto-Kayenta) or a comparative adjective (Upper Gila) except where a prefix or an adjective has become an accepted part of the geographic name (Little Colorado).

(3) Names should be short (Chaco) and unwieldy geographic names can be abbreviated (Kokopnyama becomes Kokop). Unnecessary adjectives should be omitted (North Creek Gray Corrugated becomes North Creek Corrugated).

(4) Any name of a pottery type given before the Pecos Conference of 1927 is credited to an author if a geographic name is inferred with a descriptive term. Example: Nordenskiöld ("Cliff Dwellers of Mesa Verde," 1893, p. 83) has accurately described and figured a type from Mesa Verde, which he calls Black and white ware. Kidder ("Southwestern Archaeology," 1924) calls it Mesa Verde Black-on-white, which is properly constructed on the binomial