

The *Tree-Ring Bulletin* will appear four times a year and will publish papers which are the results of original research on tree rings in their relation to climatology, and to other subjects. No paper which has already appeared will be accepted.

Manuscripts should be typewritten in double spacing. The Editor reserves the privilege of returning to the author for revision approved manuscripts and illustrations which are not in the proper form for the printer.

In reporting tree-ring data authors are requested to submit their data in a table such as appears on the back page of this number. This will cut the cost of publication very greatly.

Until funds are available authors will be requested to pay the cost of illustration which may be line cuts or half-tones, but must be drawn or printed on white paper, and mounted with paste, not glue.

Each author will be given, free of charge, twenty-five copies of the *Bulletin* in which his article appears. Reprints may be procured at cost with or without covers if ordered at the time the galley proof is submitted.

Manuscripts and illustrations should be sent express prepaid or by registered mail to the Managing Editor, Dr. Harold S. Colton, Museum of Northern Arizona, Flagstaff, Arizona.

EDITORIAL

A. E. DOUGLASS

The field of tree-ring study touches a number of sciences. Botany is of the first importance. The annual rings at the dry borders of the southwestern forests give excellent rainfall records. This is a reaction of the tree to its environment and as such is a contribution to ecology; in this southwest area nature has produced a living laboratory and staged a test such as the biologist cannot prepare in his own garden.

Climatology is closely related to our studies because the trees we use give this rainfall record for more than a thousand years past and thus supply us with fundamental data not elsewhere equalled in length of time and accuracy of dated record. These long records have developed the use of new and more efficient analytical methods in the study of climatic cycles. These records of rain and drouth also meet certain needs of the reclamation engineer and the soil erosion specialist.

Geology stands also in close relation because the interpretation of modern rings in terms of climate enables us to read the meaning of fossil rings in the study of past climates.

Astronomy holds a close relation, for rainy and dry spells that influence the trees depend on atmospheric circulation whose motive force comes from the sun. And the astronomer finds in tree-ring variations a reflection of solar changes over longer periods than described in human histories. More than that, the study of geologic tree growth intimates a certain stability in the sun over immense periods of time.

And archaeology is finding important developments along tree-ring lines. The ancient rainfall conditions in this region long occupied by primitive man were recorded in the trees with which he built floors and roofs. In this way the student learns the exact time of construction of great ruins, and he can see in the drouths depicted in his logs a possible explanation of their abandonment.

In the last five years special development of tree-ring work has taken

place along lines of archaeology and climatology. Each is dependent on precise extension of a fundamental chronology, whose material is coming from the ancient ruins. In making this statement one does not forget that the three-thousand-year records of the big Sequoia have a superb climatic importance when obtained by correct dating of the upland trees. In the Sequoias rainfall also plays the chief role, but not so prominent a part as in forest border pines and firs of the pueblo area. In the latter region of greater dryness where the trees are growing under a keener stress, a field of new adventure has been opened to the archaeologist in the dating of ruins and a gratifying number of students have become skilful in the interpretation of rings. In a rapidly developing subject comparisons of data and methods are very important to the progress of all. Accidental meetings and discussions by letter are unsatisfactory, so a conference was arranged as described elsewhere in this bulletin and the needs of tree-ring students were discussed and methods of insuring co-operation were proposed. At the meeting it was brought out that while each student gets acquainted with parts of the long basic chronology, each new location or new period of time requires long preparation. Hence to establish dates of new ruins with proper care the best specimen on which the date is founded should be made available to all interested in the subject and capable of checking the results. In the discussions also new points of technique were brought out and some modifications of methods already in use were suggested.

To supply these present needs we require a medium of exchange of ideas, a publication in which new results may be set forth with some description of the data on which they are based, and new methods may be presented for consideration. This issue contains the suggested data regarding a group of dates from the Tsegi Canyon region. In the table may be found various facts on which the archaeological dating is based. In the limiting dates the chronologist and climatologist may discover whether there is material for his special studies. We hope later to be able to publish also the photograph of a good type specimen of each site whose dates appear in these tables. Such publication represents a thoughtful effort to standardize the accuracy of tree-ring dating so that before presentation to the public such dates shall have had every reasonable test to exclude error. This care, which had its immediate incentive in connection with archaeology, has equal importance, we must remember, in all the scientific lines associated with tree-ring study. It is only by infinite care that the language in trees can be correctly interpreted. While these are the present purposes of the publication it is not intended that the papers included should be limited in this way. The door is held open for development along any line to which the study of tree rings may be of service to science.

The emblem at the head of this issue needs explanation. The long chronologies constantly used in the sciences above mentioned have been under development since 1904. Extensions back into prehistoric times have been made from time to time by adding long ring sequences that were called floating chronologies. The earliest of these so far identified was named EPD, Early Pueblo Dating, and was recognized in 1927 on a specimen collected by Jeancon and Ricketson in 1923 at Mummy Cave ruin. This chronology has been recognized in great numbers of specimens by a certain characteristic configuration of rings that we call the "EPD Signature." It is this group of rings that appears in the emblem. It was drawn by Virgil Hubert July 25, 1934.