

# TREE RING BULLETIN

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HAROLD S. COLTON, Managing Editor  
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## THE TREE RING SOCIETY

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Flagstaff, Arizona

### BY-LAWS

Article 1—The name of this association shall be the Tree Ring Society.

Article 2—There shall be two classes of active members,

- (a) those who are contributing to basic research in dendrochronology
- (b) honorary members who have contributed in special ways to tree-ring studies.

Article 3—Prospective members must be proposed by two members of the society and elected by a two-thirds majority of the members present at a meeting duly called by the president.

Article 4—The officers of the society shall be a president and secretary to serve for a term of one year.

Article 5—The Tree Ring Bulletin shall be the official organ of the society, the board of editors of which shall be appointed by the president.

Article 6—These by-laws can be amended at any duly announced meeting of the society.

### EDITORIAL BOARD OF TREE RING BULLETIN

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## INFORMATION

### AUTHORS

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 Vol. I, No. 1. 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 Editor, Dr. A. E. Douglass, Tree Ring Laboratories, University of Arizona, Tucson, Arizona.

### SUBSCRIBERS

All correspondence having to do with subscriptions must be addressed to the Managing Editor, Dr. Harold S. Colton, Museum of Northern Arizona, Flagstaff, Ariz.

Should recent subscribers wish to complete their files of *Tree Ring Bulletin* by beginning their subscription with July 1934, Vol. 1, No. 1, please advise the managing editor immediately and the back issues will be forwarded.

## DATES FROM GILA PUEBLO

BY EMIL W. HAURY

Nearly all the ruins of southern Arizona and New Mexico have eluded the efforts of those who have attempted to date them on the basis of tree-rings. This is due, in the main, to the low altitude in which the ruins occurred and to the consequent distance from the forests where datable trees grew. The trees accessible to the builders of these southern villages were mesquite, ironwood, cottonwood, sycamore, etc., none of which have as yet shown themselves useful in tree-ring studies. One of the few ruins—and at the present time the southernmost—that has been dated by the Douglass system is Gila Pueblo, a Pueblo IV community of about 125 rooms, situated three miles south of Globe. Although it occurs at an altitude of 3600 feet above sea level and in the Lower Sonoran zone, it lies at the foot of the Pinal Mountains and only a few miles distant from pines. Most of the charred wood recovered from about 100 excavated rooms has been other than pine, but two rooms have yielded sizable logs of Western Yellow pine upon which certain dates can be placed. All of the material was charred.

The analysis is given below:

Room Number	Piece Number	Outside Dated Ring	Inside Dated Ring	Approx. Radius in MM	Estimated Rings Lost at Outside	No. Absent in Series	Bark Date
98	GP 395	1385	1200	130	0	0	1385
90	488	1345	1243	60	0	5	1345
90	489	1345	1312	55	0	0	1345
90	490	1345	1298	70	0	0	1345
90	493	1345	1311	40	0	0	1345
90	494	1345	1314	35	0	0	1345

These specimens were all dated without difficulty on the chronology derived from trees in the Flagstaff-northeastern Arizona area. Although the woodland on the Pinal Mountains falls into the type referred to as an "island forest," it is not far removed from the great forest belt to the north. Ring records from the Sierra Ancha, 40 miles north of Globe, agree with those from the Flagstaff area (1); hence the conformity in all major particulars of the Gila Pueblo wood to that of the Sierra Ancha and Flagstaff is to be expected. Dr. Douglass' study of living trees on the Pinal Mountains showed distinct resemblance to that Flagstaff pattern (2), thus demonstrating the ability to cross-date in modern wood.

The log labelled GP 395, giving a 185 year record, shows an almost perfect agreement with the master plot. Differences may be noted in the following areas: 1215-1225 is not so sharply marked as in the Flagstaff series; 1350 is larger; and the 1360-1364 configuration is less sharp. The 1276-1299 drought is not accentuated quite so markedly as in the trees from Flagstaff, but its duration and the pattern of the key rings within the drought area remain the same. In specimen GP 488, from Room 90, the drought record is defective to the extent of 5 omitted rings in 25, suggesting severe dry conditions. The difference in these two drought records is unquestionably due to environmental factors related to the indi-

vidual tree, and they become valuable chiefly to show that the drought extended into south-central Arizona, a fact which may prove useful to the archaeologist in studying the people of this area.

Culturally, Gila Pueblo is identified as a village of the Salado people (3), a division of the larger Pueblo Culture. The chief Salado settlements lie in the Tonto Basin, in the mountains and valleys to the south, and westerly in the Gila Basin where they mingled with the Hohokam. The evidence suggests that the movement into the Hohokam territory took place about 1300 immediately following the great drought. As one of the results of this co-occupation, Casa Grande and allied structures were built, chiefly through the influence of the Salado immigrants. Because of the agreement in the material culture of Gila Pueblo and that of the Salado occupation in the Gila Basin, such villages as Gila Pueblo and Casa Grande may be judged to be contemporaneous. Thus, with 14th century dates established for the former, the latter may be placed in the same century by inference. It must be said, however, that occupation at Casa Grande by the Hohokam long preceded this date, and that they continued to live in the vicinity of Casa Grande after its abandonment by the Saladoans which probably took place before 1450.

#### REFERENCES

- (1) Haury, E. W., 1934. The Canyon Creek Ruin and the Cliff Dwellings of the Sierra Ancha. Medallion Papers No. XIV, pp. 20-21. Globe, 1934.
- (2) Douglass, A. E., 1928. Climatic Cycles and Tree-growth. A Study of the Annual Rings of Trees in Relation to Climate and Solar Activity. Carnegie Institution of Washington, Publication No. 289, Vol. LL, p. 75. Washington, 1928.
- (3) Gladwin, W. & H. S., 1930. Some Southwestern Pottery Types, Series I. Medallion Papers No. VIII. Globe, 1930.

## SECOND ANNUAL TREE RING CONFERENCE

BY H. T. GETTY

Tree ring workers met in their second annual conference at the Laboratory of Anthropology, Santa Fe, New Mexico, at 9:30 A. M. on Wednesday, May 1, 1935. Dr. A. E. Douglass was chairman for all sessions of this conference, and Dr. H. S. Colton voluntarily served as secretary. This conference was held in conjunction with the annual meeting of the Southwest Division of the American Association for the Advancement of Science, which also met in Santa Fe.

Those attending this second annual conference were: Dr. A. E. Douglass, Dr. H. S. Colton, Mr. Earl H. Morris, Dr. Emil W. Haury, Dr. Florence M. Hawley, Mr. W. S. Stallings, Mr. J. C. McGregor, Mr. H. T. Getty, Mr. Edmund Schulman, Mr. Roy Lassetter, and two tree ring students from the University of New Mexico.

Dr. Douglass made the introductory remarks at the opening of the conference, and outlined the grant of the Carnegie Institution which is to publish the results of his tree ring work. He outlined three topics to be discussed in the conference, namely: (1) the editing of the Tree Ring Bulletin, (2) the checking of dates, (3) presentation of dating tables in the Bulletin. Dr. Douglass stated that the editing of the Bulletin can be handled in Tucson. In regard to the checking of dates he designated W. S. Stallings to be responsible for the Rio Grande area, Florence Hawley for the Tennessee Valley, H. T. Getty for the Mesa Verde, Emil W. Haury

for central Arizona, and John C. McGregor for the San Francisco Mountains area.

The conference voted to Dr. Douglass the power to appoint an editorial board for the Tree Ring Bulletin. Each member of this board will represent a particular phase of tree ring research and will approve for publication in the Bulletin such papers as come within his field.

Dr. Douglass was empowered to appoint a committee from those present at the conference to draw up a set of by-laws for the governance of a Tree Ring Society. The committee consisted of Emil W. Haury, chairman, Florence M. Hawley, Harold S. Colton, W. S. Stallings, and John C. McGregor.

In connection with the presentation of data in the Bulletin, it was agreed that in papers giving dates a statement should be made describing very briefly the site, the pottery, and the architecture. Modifications of the table of data in these papers were discussed and the following changes were recommended: (1) to delete the word "estimated" in the heading of the last column, and (2) to rearrange the order of the table.

Immediately after the morning session adjourned, a set of by-laws for a Tree Ring Society was drawn up by the committee appointed for that purpose.

The afternoon was given over to a symposium on "Trees: Recorders of History and Climate," with Dr. A. E. Douglass as chairman. The following papers were presented:

"Factors Influencing Tree Growth"

G. A. Pearson, Director, Southwestern Forest and Range Experiment Station, Tucson, Arizona.

"Tree Rings: Indicators of Nature's Depression Cycles"

E. W. Haury, Assistant Director, Gila Pueblo, Globe, Arizona.

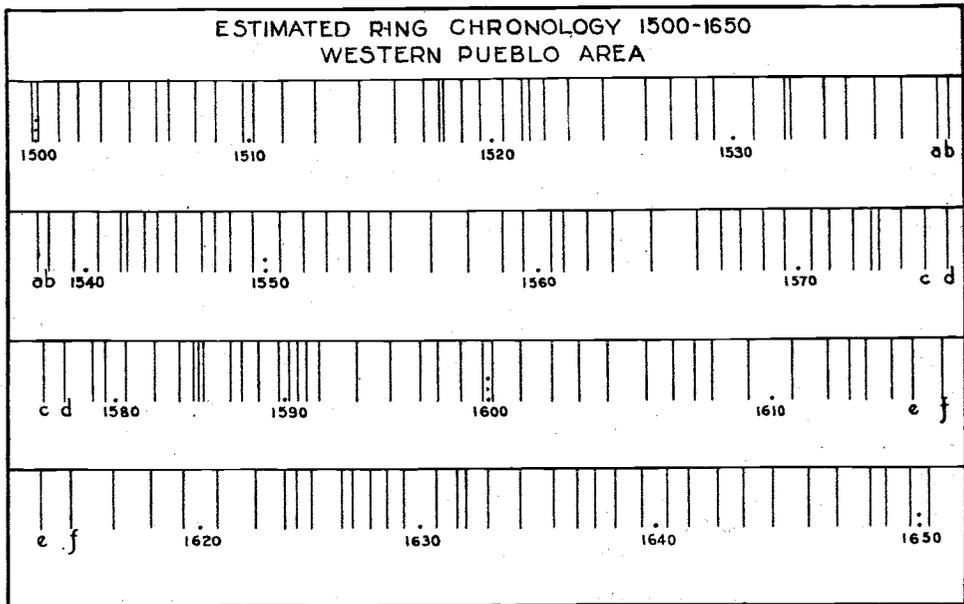
"Tree Rings: Indicators of Nature's Depression Cycles"

A. E. Douglass, Research Associate, Carnegie Institution of Washington, and Director, Steward Observatory, University of Arizona.

At the evening session of the conference, which was called for 10:00 P. M., the By-Laws for the Tree Ring Society were adopted. Dr. A. E. Douglass was elected President of the Tree Ring Society and H. T. Getty, Secretary. The conference adjourned after the election of officers.

The minutes of this conference are on file with the Secretary of the Tree Ring Society.

ESTIMATED RING CHRONOLOGY III: 1500-1650  
A. E. DOUGLASS



Special Ring Characters

1500	Very small; sometimes absent	1566	Small
1506	Smallish	1573-93	Great drouth
1510	Small	1579	Very small
1516	Small	1584-5	Microscopic and one or both often absent
1517	Very small to microscopic	1589	Larger
1518	Small	1590-3	Very small
1521	Small	(1600's generally large rings)	
1522	Very small to microscopic	1600	Very small; sometimes microscopic
1523	Small	1608	Small
1526	Very large	1610	Big
1532	Microscopic or absent	1613	Small
1538	Small	1623-4-6	Small
1542	Very small to microscopic; rarely absent	1632	Usually very small; reliable dating check
1547-8	Small and equal	1637	Smallish
1550's	Big	1648	Sometimes small
1561-3	Small		

## Book Reviews

A. E. DOUGLASS—"Dating Pueblo Bonito and Other Ruins of the Southwest;" 74 pp., 42 illus., bibliography; National Geographic Society, Pueblo Bonito Series No. 1. Washington, D. C. — 1935. 6½ x 10 inches.

The final release of this valuable paper is most gratifying not only to Southwestern archaeological and dendro-chronological students but to Dr. Douglass himself, for he has long realized the necessity of making his data readily available to other workers in this field. Bonito Series No. 1, is divided into six major parts. The first three pages are given over to a general discussion of the Tree Ring method, with a definition of a few terms, such as "complacent," "sensitive," etc., and the identification of the most valuable types of woods. The second section, for 26 pages, consists of a review of the various expeditions undertaken in an effort to bridge the gap existing in 1929. Two fine diagrams readily explain the gap as it existed in January and as it was bridged in July of that year. This section contains many excellent pictures of specimens, historical events, and sites, with not a few valuable comments, such as the similarity of tree records from far flung areas, etc. Part three is a very brief correlation of culture stages with time periods, general pottery correlations are suggested, and the Hopi history including Spanish influences mentioned. From this point on, or for the remaining thirty pages, the paper becomes of exceeding interest to the dendro-chronologist and archaeologist alike. Part IV is a discussion of problems, filled with data of the greatest importance to other workers. A discussion of prehistoric forests now extinct accompanied with data on residual trees is followed by arguments against the use of dead material in ruins, the re-use of timbers, drought effects, and climatic values. In this discussion he gives a list of the most severe droughts and suggests several others. Part V consists of a table of dates of which almost 1400 specimens from 45 dated ruins are listed. This is the complete list of dates derived by Dr. Douglass of the ruins dated in connection with the Bonito studies. This list will unquestionably be one of the most valuable references of all future archaeologists. The last part is a pictorial representation of actual tree ring specimens from 698 to 1929 A. D. These remarkable photographs rate next to actual specimens for other students to check their work by, and accompanied as they are by notations of microscopic or absent rings and characteristic signatures they are the most valuable contribution to the study thus far published.

This report is of outstanding value in three ways. First: His observations and comments on such subjects as ancient forests, re-use of timbers, use of dead trees, and drought effects, for the first time in print, will represent a fine source of information and reference. Second: The list of dates as presented with number groupings is of the most importance to archaeologists at this time, when periods in reconstructing prehistory are recognized to be of such value. Third: The pictorial and more or less complete data on chronology is of the greatest aid to daters as a means of checking their own work. This may to some extent counteract the lack of actual specimens for checking certain periods which is often a serious handicap.

It is to be hoped that in the near future it will be possible for Dr. Douglass to bring out, in similar form, a report on the additional early dates which he has recently secured, and including a list of the sites thus dated.

J. C. McG.

FLORENCE M. HAWLEY—"The Significance of the Dated Prehistory of Chetro Ketl, Chaco Canyon, New Mexico. 90 and x pp., 18 plates, bibliography, University of New Mexico, Bulletin, Monograph Series, Volume 1, Number 1. July 1, 1934. 8 x 11 inches.

The prehistoric ruins in Chaco Canyon have attracted the attention of archaeologists from the time they were first reported by exploring parties in the middle of the last century. Much work has been done but little has been published, so the present work has filled a needed gap. The conclusions are based on the study of 264 dated beam specimens. The paper is divided into three parts.

In the first part the author attempts by the Douglass tree ring analysis to date the various masonry types exposed by the archaeological expeditions of the University of New Mexico in Chetro Ketl, one of the large sites in Chaco Canyon. As a result of this study four building periods are recognized:

- First period—945-1030 A. D.
- Second period—1030-1090 A. D.
- Third period—1099-1116 A. D.
- Fourth period—undated.

In the second part of the paper the author has studied the sherds in the Chetro Ketl refuse mound in an attempt to date the various pottery types. The method is original, as she tried to correlate the sherds with charcoal fragments from cook fires in the different strata of the midden. The method is sound but she was unfortunate in selecting a secondary midden for study. She could not be sure that the charcoal belonged to the same period as the pottery in every case. Statistical methods were therefore applied to help in the analysis. She was also unfortunate in not having good descriptions of the pottery types to rely upon. For statistical purposes, therefore, she divided the black-on-white types into unpolished, semi-polished, and polished. The semi-polished lasted until the end of the 10th century. The polished black-on-white, which seems to be that known to archaeologists as Classical Chaco, predominated from 1084 to 1122, and perhaps lasted much longer, but there was no charcoal to correlate with the potsherds. The third part of this paper dealt with prehistoric climates of Chaco Canyon. A number of dry periods are recognized, but the Chaco builders seem not to have been influenced adversely by even such long droughts as those between 900-907 and 1135-1141. Although the author does not state it, twice as many beams seem to have been cut in dry years than in wet.

H. S. C.