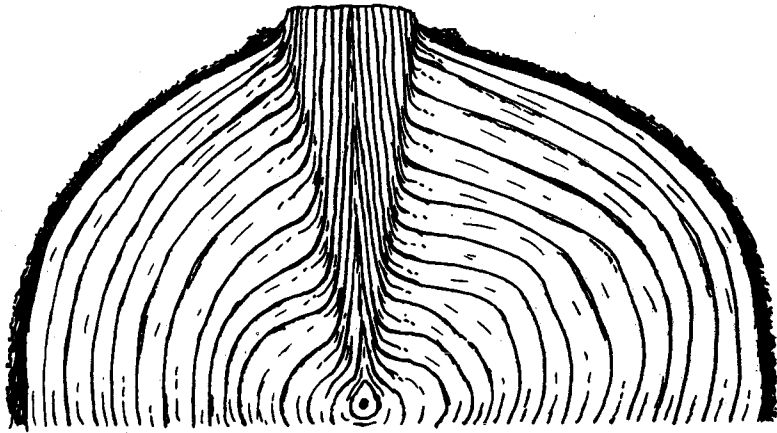


## TREE RINGS IN BRANCHES

BY WALDO S. GLOCK

An interesting problem in the age of a living conifer was recently brought to my attention. Sample ring counts interpolated into the radius of the tree gave such an excessive age that a trip into the field seemed worthwhile. Cores taken from the trunk showed ring counts per inch far less than in the specimens submitted previously. Then the fact came out that these specimens were secured chiefly from branches.

Now the normal successful branch of the conifers used in tree-ring work emerges from the axis of the trunk at, or near, the base of the seasonal increment of tip growth. The branch, therefore, at any later time is of the same age as the trunk at the level of emergence. Since the



The relation of rings in trunk and branch in a juniper section, EFR 14.

diameter of the branch is less than that of the trunk, the thickness of the rings must be correspondingly less in the branch. The ring count per inch in the branch must be far higher than that in the trunk, for the two are of exactly the same age at the level of the branch.

This relation of trunk and normal living branch is self-evident. However, a 19-foot sapling was cut down and sectioned so as to bisect a branch longitudinally from its point of origin at the axis of the trunk out to a point beyond the bark of the trunk. The radius of the trunk was three inches and of the branch one-half inch at the point of emergence. In this case, therefore, the ratio of ring thicknesses is six to one. Moreover, the individual rings can be traced from the trunk out into the branch where all can be identified. These relations are shown in the accompanying diagram. Inspection of an ordinary conifer, of course, shows the normal decrease in length and diameter of the lateral branches from bottom to top.

Several points which have been derived not only from this study but also from others deserve mention. (1) With proper care and adequate knowledge of the species used, a branch can be made to reveal the age of the tree at the level of emergence, due allowance being made for the annual increments of tip growth in the branch from the axis of the trunk out to the place on the branch where its rings are counted. (2) Branches of conifers very commonly are strongly hyponastic, that is, the axis lies

closer to the upper than to the lower side, which causes the rings to be thin above and thick below. Red, or "compression," wood is not at all an uncommon feature of the rings on the under side of the branch. This hyponastic characteristic, when present, can be used to distinguish branch from trunk in archaeological material. (3) For chronologic or climatic purposes branches are apt to be rather unreliable. They are, on the whole, a poor substitute for the trunk. Cross-dating (or matching the rings) between a branch and its parent stem may not be of such high quality as that among adjacent trees. The ring records from branches apparently diverge more from the average record of a group of trees than the individual trunk record diverges from that average. Branches appear to be more erratic and less consistent than trunks.

## DATES FROM GALLO CANYON, EAST-CENTRAL NEW MEXICO

BY W. S. STALLINGS, JR.

Thirteen miles southeast of Corona, in the valley bottom of Gallo Canyon, and adjacent to the ranch-house of Mr. F. H. Armstrong are the mounds of a compact, very late Pueblo III - early Pueblo IV village, Laboratory of Anthropology site number 1225. The mounds, varying from some 25 to 35 feet in width, form a slightly wedge-shaped quadrangle, roughly 140 by 180 feet, surrounding a plaza. Near one end the quadrangle is broken by a passage-way some 15 feet wide. The pueblo is essentially an adobe structure and appears, from the height of the mounds, to have been terraced to at least two, probably three, stories.

Ceramically the site is a Chupadero Black-on-white village containing a large amount of Rio Grande Glaze A red (1), a component of the Cedarvale phase as defined by Mera (2). Of particular interest is the abundance and diversity of recognizable trade pottery present. Types from regions to the south and southwest include Lincoln Black-on-red, El Paso Polychrome, Three Rivers Red-on-terra-cotta, Babicora Polychrome (3), and Gila Polychrome (including pieces with secondary use of red); and from the west and northwest, matte- and glaze-paint varieties of St. Johns Polychrome and an undefined eastern Little Colorado, Pueblo IV type with a contrasting slip (red exterior, white interior) decorated on the interior with green glaze paint. Also present from the northwest are sherds representative of the Los Padillas-Heshotauthla Polychrome category (4), minor varieties of Rio Grande Glaze (San Clemente Polychrome, Arenal Polychrome) and a black-on-white pottery with Mesa Verde affinities which occur in the region of Albuquerque as members of Mera's Arenal phase (2). On general evi-

(1) Descriptions and discussion of the chronologic positions of the pottery types mentioned may be found in the following papers, which also contain further bibliography. D. D. Brand, "The Distribution of Pottery Types in Northwest Mexico," *American Anthropologist*, 37 (2), Menasha (1935). H. S. & C. E. Cosgrove, "The Swarts Ruin . . ." *Papers of Peabody Museum of Amer. Arch. and Eth.*, 15 (1), Cambridge (1932). W. & H. S. Gladwin, "Some Southwestern Pottery Types, Series I & II," *Medallion Papers*, 8 & 10, Globe (1930, 1931). A. V. Kidder & A. O. Shepard, "The Pottery of Pecos," 2, *Papers of the Phillips Academy Southwestern Expedition*, 7, New Haven (1936). H. P. Mera, "Chupadero Black-on-white," *Laboratory of Anthropology, Tech. Ser., Bull. 1*, Santa Fe (1931); "A Proposed Revision of the Rio Grande Glaze-Paint Sequence," *Lab. of Anthro., Tech. Ser., Bull. 5*, Santa Fe (1933); "Ceramic Clues to the Prehistory of North Central New Mexico," *Lab. of Anthro., Tech. Ser., Bull. 8*, Santa Fe (1935). H. P. Mera & W. S. Stallings, jr., "Lincoln Black-on-red," *Lab. of Anthro., Tech. Ser., Bull. 2*, Santa Fe (1931). E. B. Sayles, "Some Southwestern Pottery Types, Series IV," *Medallion Papers*, 19, Globe (in press). W. S. Stallings, jr., "El Paso Polychrome," *Lab. of Anthro., Tech. Ser., Bull. 3*, Santa Fe (1931).

(2) Mera, *op. cit.*, 1935.

(3) The sherds of Babicora Polychrome were kindly identified by Mr. E. B. Sayles, Gila Pueblo.

(4) The distinction between Heshotauthla and Los Padillas Polychromes as recently described is not clear. There is undoubtedly a considerable duplication in the material on which the descriptions are made if the two lots do not represent essentially the same type. See Kidder and Shepard, *op. cit.*, pp. 363-366, 387, 603-608; Mera, *op. cit.*, 1935, pp. 81-83.