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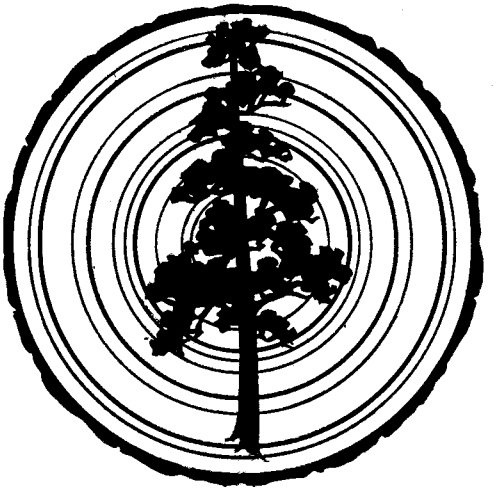

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NOTE ON THE EARLY DURANGO COLLECTIONS

A. E. Douglass

During 1938 to 1945 several hundred specimens from the Durango area were sent to me from the collections of E. H. Morris, I. F. Flora, and others. A considerable number were readily dated by comparisons with the long chronology already developed in northeastern Arizona. These gave definite dates to several pithouse ruins about 10 miles north of Durango. Among these was IGN 7:31, close to the Carnegie-Morris camp of 1939 with building dates in the 750's A. D. IGN 7:36 and 7:23 were in the same general area and time. The dating of these three was complicated by the use of immensely old scopulorum junipers showing in many fragments ring dates in the 200's A. D. Sites IGN 12:1 and others were in the same class. The largest single contributing ruin was IGN 7:101, Floor 1, which was dated near A. D. 320, with many fine Douglas fir specimens extending a chronology back to A. D. 176. Small specimens from the Fall Creek Caves were awaiting attention when increased research in climate, war-related, demanded full time.

By the beginning of 1948 it was evident that I could not hold these valuable specimens back from proper study, and the entire collection was handed over to Edmund Schulman, who is using them in developing long, strong, quantitative ring records.

The following references include photos of early Durango ring records: Tree-Ring Bulletin 8:14, 1941, and 9:21, 1943; Researches in Dendrochronology, Univ. Utah Bull. 37 (2), 1946, p. 11.

EARLY CHRONOLOGIES IN THE SAN JUAN BASIN*

Edmund Schulman

COLLECTIONS AND DATING

Early in 1948 the entire set of dated specimens from northeastern Arizona[1] was minutely reviewed and mean standardized growth curves derived separately for Douglas fir and pinyon pine. Short individual ring series were not included, in general. All of the longer and most sensitive specimens from the Durango area in southwestern Colorado[2] were also measured, reduced to mean growth curves, and with the northeastern Arizona material are presented in full in Figure 1.

[1]A. E. Douglass, Tree-Ring Bulletin 2:29-34, 1936 and 6:39, 1940; Southwestern Photographic Ring Sequences, Amer. Documentation Inst. Doc. 1298, Washington, 1939.

[2]Douglass, Tree-Ring Bulletin 9:21, 1943 and 15:24, 1949.
E. W. Haury and I. F. Flora, Tree-Ring Bulletin 4 (1) : 7-8, 1937.

*Fifth report on quantitative master chronologies in the Pueblo area. For previous reports see Tree-Ring Bulletin: 12 (3) and table in 14 (1) ; 14 (2) ; 14 (3) ; 15 (1/2).

In March, 1948 the main collection from Falls Creek Caves, near the Trimble Springs site IGN 7:101, was sent to the Laboratory through the courtesy of Earl H. Morris, Harold S. Gladwin, and Deric O'Bryan. It proved to contain a number of extraordinarily fine, though short, records in the 100's A. D. With the aid of the new material several specimens from 7:101, representing the previously undated Floors 2 and 3, were also found to carry good records in the 100's. All of these series have been included in the figure.

The apparently consistent early use of Douglas fir and later use of ponderosa pine at Durango, as shown in panel A of the figure, is largely, though perhaps not entirely, an accidental distribution dependent on the set of currently dated specimens and the location of the ruins from which they were derived. Specimens of ponderosa and pinyon pine, thus far undated, are present in the early collections at Durango.

Specimen data are summarized in Table 1†. The mean growth indices for northeastern Arizona are tabulated in Table 2; the Durango indices are not tabulated here, since it is expected that they will be extended in the near future.

THE EARLIEST CUTTING DATES IN THE SOUTHWEST

Construction dates thus far determined at Falls Creek Caves are roughly contemporaneous with DuPont Cave near Kanab, Utah, which was dated in 1939 at A.D. 217 as the earliest site[3]. In the newly dated collections, specimen 2H-30, a sensitive, open, wood series from the Falls Creek Caves, in Douglas fir, shows a complete outer ring at A.D. 203, and since well-preserved bark adheres to the outside, provides the earliest definitive cutting date in Southwestern archaeology‡. Specimen 2H-41 from the same site, a full section, was almost certainly cut at the same time or earlier.

Microscopic analysis of material at the outside of charcoal specimen II-1 from the 7:101 site showed it to be bark; between the bark and the datable sequence ending at A.D. 182 was a crowded set of eighteen rings within which some omitted rings may be suspected. The cutting date of this specimen is therefore given as A.D. 200+.

There is strong but not conclusive evidence that charcoal beam III-4 from the 7:101 site was cut shortly after the ring for A.D. 188 was complete. After the fragment with this number was dated, measured, and plotted in the diagram, several other fragments from Floor 3 were identified as from the same tree. All showed readable sequences out to the relatively large ring for A.D. 188, which was in all cases continuous on the outer surfaces. A thin film of macerated material adhering to the outside of the specimens was tentatively identified as inner bark but was nowhere present in sufficient thickness to make the identification conclusive.

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†Specimens in Table 1a were dated by Douglass (Tree-Ring Bulletin 2:29-34. 1936 and unpublished notes) except for CK-331 (F. M. Hawley, Bulletin 3:21, 1937) and FR-20 (C. F. Miller, Jr., Bulletin 1:31, 1935). Of the specimens in Table 1b, the first eleven were dated by Schulman and the next five by Douglass; the remaining twelve were part of a very large body of material contributed by I. F. Flora, who had correctly dated numbers 91, 92, 135, 154, 160, 16A:1, and DPL-2, Douglass dating 104, 106, and 7:2, and Schulman 109 and 124. For the Falls Creek Caves, symbols ADE, AF, 2H, etc., represent various subdivisions of excavation; at 7:101, Floor 3, Beam 4, is designated by the symbol III-4, etc.

[3] Stallings, Tree-Ring Bulletin 8:3-6, 1941.

‡Presented at the Southwestern Archaeological Conference, Point of Pines, Arizona, Aug. 25, 1948.

That Floors 2 and 3 of the Trimble Springs ruins were contemporaneous with the principal dated horizon of the nearby Falls Creek Caves is at least suggested by the range of dates in Table 1.

CLIMATIC RELATIONS

To estimate the rainfall-index value in the early ring records from northeastern Arizona we may refer to the close relation between recorded October-June rainfall at Durango and tree growth at Mesa Verde[4].

Only limited comparisons of the early northeastern Arizona series with the standard index for Mesa Verde may be made, for the former antedates almost all of the latter. A single but excellent Mesa Verde Douglas fir, MV-23, parallels the fairly well based record in this species in northeastern Arizona during the 500's and late 400's. Despite the inadequacy of one tree as the basis of a climatic index, correlation coefficients were found to be fairly high, as follows: 465-499—+0.68; 500-549—+0.51; 550-599—+0.58. These coefficients agree with the expectation that these two areas are essentially subject to the same fluctuations in winter precipitation; living trees indicate that occasional minor but real differences in chronology do exist, especially between Mesa Verde and the more westerly sites in northeastern Arizona. More detailed analysis of the climatic history in the indices of this report is reserved until the survey of Southwestern chronologies is complete.

Table 1a. Dated Specimens from Northeastern Arizona

Specimen No.	Site	Form[1]	Species[2]	Mean Ring-Width, mm.[3]	Plot Scale[4]	Inner Ring, A.D.[5]	Heartwood Ends, A.D.	Outer Ring, A.D.[6]	
MLK-152[7]	Obelisk Cave	sec.	DF	0.28	2	10 p	421	477	c
M -143	Mummy Cave	v-cut	DF	0.26	2	91 p	289	358	b
MLK-151	Obelisk Cave	v-cut	DF	0.75	1	233 p	416	479	v
M -190	White House Ruin	v-cut	DF	0.46	1	238 p	475	496	v
M -110	Mummy Cave	ch. sec.	DF	0.70	1	261 p	.....	348	b
MLK-118	Broken Flute Cave[8]	½ sec.	DF	0.56	1	305 p	354	378	c
MLK-280	Obelisk Cave[9]	v-cut	DF	0.64	1	317 p	441	480	c
M -102	Mummy Cave	v-cut	DF	1.03	1	352 p	377	408	c
M -142	Mummy Cave	v-cut	DF	1.21	½	354 p	402	433	v
M -195	Mummy Cave	ch. fr.	DF	0.54	1	371	.....	436	vv
M -101	Mummy Cave	v-cut	DF	1.19	½	378	.....	485	vv
BE - 33	Mummy Cave	¼ sec.	DF	1.72	½	389 p	443	484	v
MLK-174	Broken Flute Cave	fr.	DF	0.34	2	405	.....	513	vv
M -129	Mummy Cave	½ sec.	DF	0.82	½	409 p	.....	486	vv
MLK-211	Cave 6	¼ sec.	DF	0.45	1	419 p	.....	553	vv
MLK- 35	Cave 2	ch. sec.	DF	0.50	1	517 p	.....	663	vv
MLK-127	Broken Flute Cave	v-cut	DF	1.28	½	521 p	579	623	c
MLK-179	Broken Flute Cave	sq. cut	DF	0.66	1	535 p	584	623	c
M -179	Del Muerto Cave 1	fr.	DF	0.77	1	590 p	652	702+	c
M -163	Mummy Cave	v-cut	DF	1.07	½	622 p	.....	666	c
BE - 32	Mummy Cave	v-cut	DF	0.66	1	715 p	758	804	v
M - 57	Sliding Ruin	sq. cut	DF	0.47	1	768 p	.....	834	vv
M -155	Mummy Cave	sec.	PP	1.37	½	663 p	.....	702	c
MLK-153	Obelisk Cave	sec.	PNN	0.38	2	149 p	.....	486	c
M -159	Mummy Cave	core	PNN	0.40	2	191	.....	367	c
MLK-110	Broken Flute Cave	sq. cut	PNN	0.35	2	197 p	.....	472	v
MLK-154	Obelisk Cave	v-cut	PNN	0.40	2	293 p	.....	488	c
MLK-226	Broken Flute Cave	sec.	PNN	0.68	1	380 p	.....	505[10]	c
MLK-145	Broken Flute Cave	sq. cut	PNN	0.45	2	418 p	.....	618	v
MLK-109	Broken Flute Cave	½ sec.	PNN	0.42	2	457 p	.....	601	c
MLK- 21	Cave 2	v-cut	PNN	0.31	2	476 p	.....	669	c
MLK- 23	Cave 2	½ sec.	PNN	0.30	2	501 p	.....	668	c
M -137	Mummy Cave	v-cut	PNN	0.34	2	509 p	.....	656	c
M -181	Del Muerto Cave 1	v-cut	PNN	0.44	2	626 p	.....	787+	vv
	Comparative Specimens from Other Areas								
FR - 20	Allantown	ch. sq. cut	PNN	0.40	2	592 p	.....	756	vv
CK -331	Chetro Ketl	¼ sec.	PP	0.97	½	643 p	.....	.....	

[4] Schulman, Tree-Ring Bulletin 12:18-24, 1946.

Table 1b. Dated Specimens from the Durango Area

Specimen No.	Site	Form[1]	Species[2]	Mean Ring-Width, mm.[3]	Plot Scale[4]	Inner Ring, A.D.[5]	Heart-wood Ends A.D.	Outer Ring, A.D.[6]
ADE- 35	Falls Creek	ch. ¼ sec.	DF	0.67	1	126 p	.....	174 vv
AF - 2	Falls Creek	ch. fr.	DF	0.35	1	134	.....	206 vv
AH - 1	Falls Creek	ch. fr.	DF	0.42	1	141	.....	198 vv
2H - 30	Falls Creek	fr.	DF	0.43	1	146	.....	203 b
2H - 41	Falls Creek	sec.	DF	0.99	½	150 p	.....	194 v
AB - 1	Falls Creek	fr.	PP	1.02	.....	206	.....	260 vv
III - 4	IGN 7:101	ch. ½ sec.	DF	0.35	1	106	.....	188 c
II - 3	IGN 7:101	ch. ½ sec.	DF	1.24	½	138 p	.....	184 vv
II - 1	IGN 7:101	ch. ¼ sec.	DF	0.88	½	143	.....	200+b
III - 1	IGN 7:101	ch. fr.	DF	0.93	½	141 p	.....	214 vv
II - 2	IGN 7:101	ch. fr.	DF	0.35	2	151	.....	208 vv
I -1A[11]	IGN 7:101	ch. sec.	DF	0.24	1	156 p	.....	197±
I - 1	IGN 7:101	ch. ¼ sec.	DF	0.76	½	177	.....	271 vv
I - 9	IGN 7:101	ch. ¼ sec.	DF	0.58	½	173 p	.....	308+b
I - 6	IGN 7:101	ch. ¼ sec.	DF	0.90	½	267 p	.....	314 vv
I - 12	IGN 7:101	ch. fr.	DF	0.92	½	292[12]	.....	322 vv
DPL- 2	?	¼ sec.	PP	1.32	½	254	.....	349 vv
IF - 91	IGN 17A:6	fr.	PP	1.13	1	398	.....	494 vv
IF -106	?	ch. ½ sec.	PP	1.42	½	447 p	.....	502 vv
IF -160	?	¼ sec.	PP	0.57	1	474 p	.....	597 vv
IF -135	?	fr.	PP	1.55	½	471	.....	539 vv
IGN -7:2[13]	Falls Creek	sec.	PP	0.99	½	530 p	.....	650 b
IF -124	?	fr.	PP	0.94	1	532	.....	583 vv
1	IGN 16A:1	fr.	PP	0.90	1	553	.....	636 vv
IF -104	?	¼ sec.	PP	0.87	1	521 p	.....	625 vv
IF - 92	?	¼ sec.	PP	0.78	1	582	.....	663 vv
IF -154	?	fr.	PP	0.71	1	610	.....	684 vv
IF -109	?	fr.	PNN	0.17	5	669	.....	.....

Table 2a. Tree-Ring Indices for Douglas Fir in Northeastern Arizona: Ring-Widths in Per Cent of the Growth Trend*

A.D.	0	1	2	3	4	5	6	7	8	9
10	.....	111	102	86	97	63	104	138	94	109
20	88	122	182	112	93	88	74	105	106	64
30	156	85	80	106	74	67	67	54	66	53
40	55	44	47	51	63	80	91	87	104	76
50	82	69	69	47	77	83	68	61	62	53
60	69	97	102	138	171	131	180	79	89	100
70	81	67	86	80	81	73	140	132	114	156
80	114	94	120	112	116	73	59	100	88	95
90	118	109	128	143	92	100	123	170	110	175
100	89	75	71	88	97	125	118	106	112	54
110	133	108	116	116	120	109	98	92	106	122
120	109	97	108	81	120	88	88	75	84	94
130	137	55	110	76	73	73	90	62	94	71
140	92	87	114	87	98	71	113	73	93	91

[1]Wood unless otherwise noted. ch—charcoal; fr—fragment; sec—section; sq—square.
[2]DF—Douglas fir; PP—ponderosa pine; PNN—pinyon pine.
[3]Over measured interval plotted in the figure.
[4]1—standard vertical scale of 0.50 mm ring-width per scale division on margin of Figure 1; ½—1.00 mm per scale division; 2—0.25 mm; 5—0.10 mm.
[5]p—pith ring.
[6]b—bark present; c—outside ring constant along outer face of specimen, probably very few or no rings lost; vv—outside date very variable, probably many rings lost; v—outside date variable, probably several rings lost.
+—outer rings very crowded, probably some absent in series.
[7]Plotted over interval 11-305 only; outer rings complacent and variable.
[8]Mummy Cave on microfilm, text reference 1, 1939.
[9]Broken Flute Cave on microfilm, text reference 1, 1939.
[10]507 in text reference 1, 1936.
[11]Branch buried in stem section I-1.
[12]Other fragments not measured extend the sequence back some years.
[13]A v-cut numbered 2H-60 in the Falls Creek collection received in 1948 was identified as from the same tree as this section received in 1939.

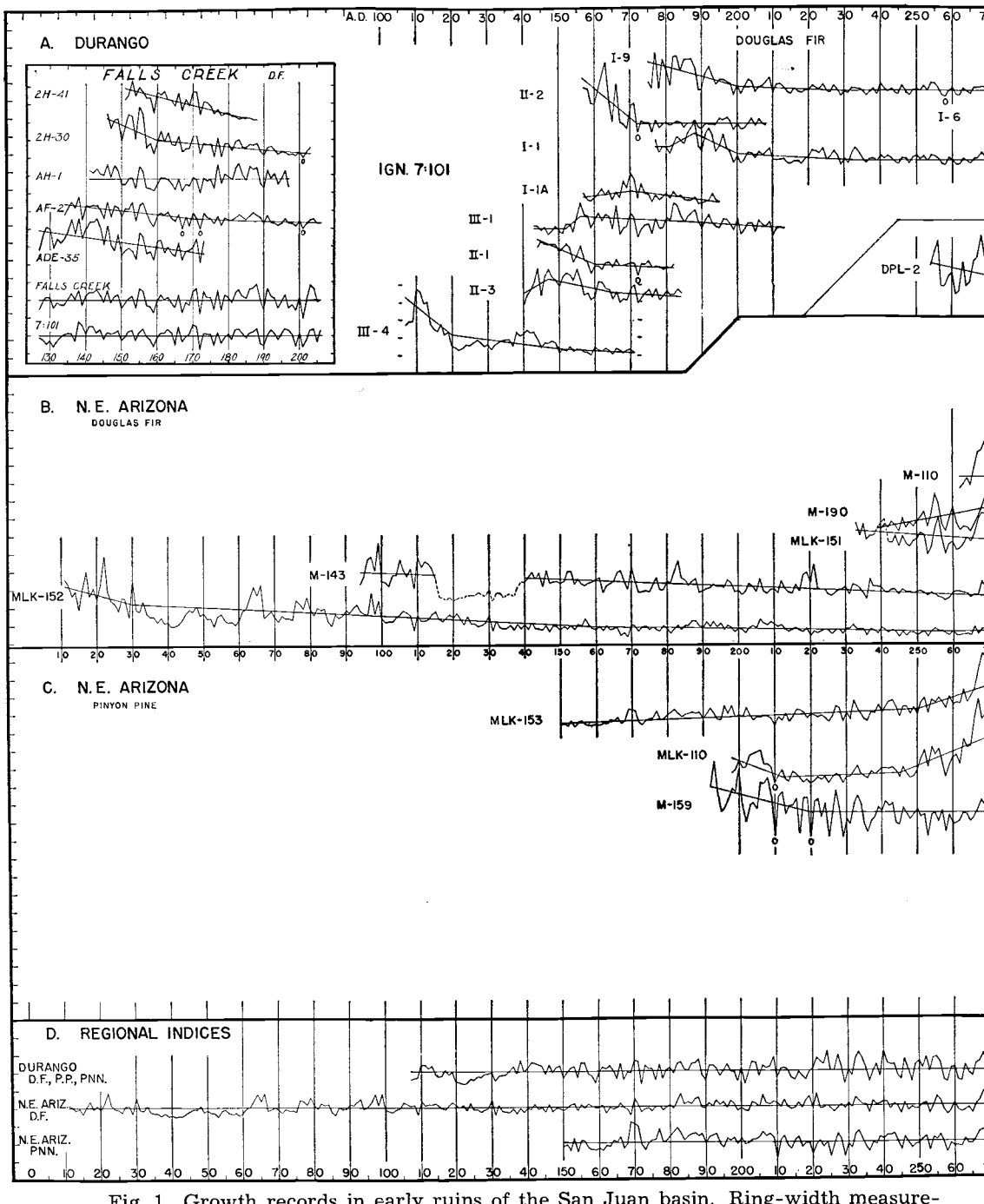
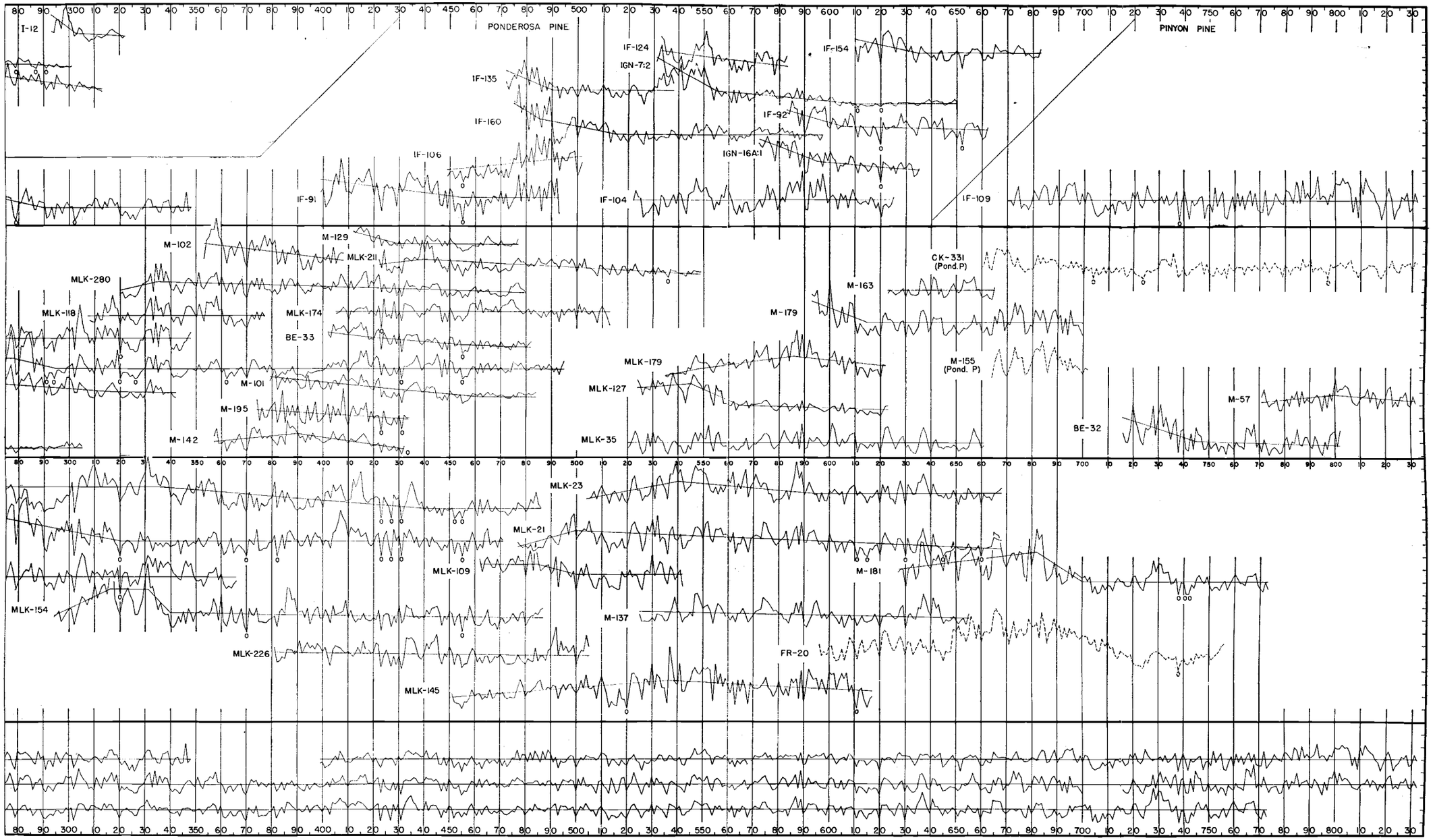


Fig. 1. Growth records in early ruins of the San Juan basin. Ring-width measurements of dated beams are plotted in panels A, B, and C; trend (or standardizing) lines are superposed. Zeros below the curves indicate locally-absent rings. To avoid overcrowding, the vertical scale of the growth curve plotted in panels A to C is omitted, but may be found in all cases by reference to Table 1, sixth column, the absolute



minimum of each curve being at or near 0.0 mm. Broken-line curves in panels B and C represent specimens from other areas or of different species which are plotted here as comparison records during the poorly represented 700's and late 600's.

In panel D are plotted standardized mean growth indices: separately for Douglas fir and pinyon pine in northeastern Arizona; a combined index for Durango.

A.D.	0	1	2	3	4	5	6	7	8	9
150	80	93	107	117	79	108	95	116	101	96
160	97	107	65	95	87	98	117	97	83	49
170	143	110	66	83	88	74	99	102	77	93
180	103	83	123	165	111	121	111	137	143	93
190	88	114	99	129	106	121	92	126	111	73
200	91	76	71	119	113	94	160	115	108	121
210	115	96	134	98	81	86	116	88	130	152
220	93	166	87	93	101	83	65	89	105	85
230	116	95	144	124	105	105	61	128	108	112
240	122	121	82	110	99	54	115	74	89	80
250	86	105	112	56	99	146	126	78	46	67
260	109	75	62	72	83	57	108	126	177	183
270	110	161	165	128	69	107	128	193	124	38
280	69	154	135	165	172	147	58	114	114	148
290	65	37	87	73	41	93	109	104	103	163
300	143	160	57	132	219	164	135	114	63	74
310	47	148	97	63	152	118	147	191	120	173
320	33	78	57	76	54	48	26	34	81	89
330	116	164	193	74	205	95	166	112	155	147
340	73	42	64	50	26	75	105	130	131	104
350	83	160	100	64	125	140	163	149	200	116
360	113	87	30	80	90	45	76	102	102	43
370	20	92	140	119	134	85	116	102	80	108
380	97	110	43	75	120	56	116	100	128	92
390	101	72	58	46	102	59	89	109	87	79
400	81	87	116	78	144	105	120	128	167	119
410	79	123	124	122	132	169	153	176	101	107
420	103	133	152	33	139	76	58	52	113	55
430	111	17	120	132	126	127	147	141	107	108
440	118	154	138	142	124	138	109	42	114	44
450	139	107	72	74	91	15	46	41	90	122
460	114	78	142	75	121	139	95	105	116	76
470	110	95	81	89	90	140	126	157	138	126
480	102	111	111	112	130	129	92	116	94	128
490	129	94	111	51	102	139	129	120	136	129
500	54	142	98	156	93	91	98	75	28	121
510	129	87	69	25	153	92	27	60	148	154
520	53	95	117	193	124	75	19	81	116	76
530	156	84	149	109	117	72	19	109	122	110
540	88	82	64	37	113	84	158	176	137	150
550	124	129	162	84	43	130	144	124	80	86
560	83	74	96	53	75	89	100	132	58	94
570	104	120	116	127	154	166	116	90	55	62
580	84	122	156	139	81	112	134	177	69	207
590	66	80	155	114	115	125	94	76	68	73
600	128	151	136	73	70	133	59	85	136	128
610	118	27	81	75	57	29	73	56	72	64
620	17	111	151	140	122	96	59	72	108	124
630	42	89	57	38	42	71	172	182	136	64
640	60	143	139	85	98	45	50	65	80	72
650	72	48	69	103	88	100	133	186	116	111
660	50	62	73	36	35	130	93	152	142	55
670	96	88	126	205	139	194	153	37	51	85
680	80	166	142	110	164	112	44	98	153	166
690	114	137	45	122	33	164	84	84	87	59
700	29	.....	.....	.....	.....	.....	.....	.....	.....	.....
710	.....	.....	.....	.....	.....	.....	60	37	35	71
720	150	102	85	47	32	91	86	97	178	75
730	154	202	116	162	120	73	146	182	16	131
740	148	37	28	145	42	204	150	144	46	50
750	108	52	74	94	32	73	64	08	95	68
760	51	104	76	74	52	222	212	158	257	67
770	108	80	157	89	35	67	79	82	31	35
780	105	135	60	121	104	189	79	115	121	131
790	86	72	140	117	67	17	119	53	152	148
800	206	103	188	129	148	140	114	74	66	59
810	90	101	107	142	77	130	112	48	98	73
820	105	154	170	63	89	68	122	117	145	76
830	69	128	87	.....	.....	.....	.....	.....	.....	.....

Table 2b. Tree-Ring Indices for Pinyon Pine in Northeastern Arizona: Ring-Widths in Per Cent of the Growth Trend*

A.D.	0	1	2	3	4	5	6	7	8	9
150	80	88	58	122	46	109	107	70	60	58
160	66	57	81	79	109	100	128	67	96	210
170	200	190	84	56	96	108	113	83	162	103
180	133	156	179	146	108	131	141	145	132	142
190	90	122	133	141	89	67	118	104	120	83
200	120	82	92	110	112	125	153	130	142	122
210	09	109	132	81	61	116	129	68	90	90
220	32	86	104	71	99	19	89	144	111	19
230	84	64	141	160	109	63	43	98	88	124
240	118	137	135	144	99	55	123	94	62	81
250	87	112	128	48	120	105	136	93	38	85
260	71	73	66	111	85	85	114	153	161	151
270	93	146	157	157	101	88	116	144	116	35
280	90	101	127	134	88	107	52	80	104	94
290	39	28	51	62	50	86	93	71	76	111
300	92	111	14	85	141	143	132	93	90	133
310	131	115	108	93	148	110	139	138	92	95
320	23	85	96	110	87	80	56	56	112	124
330	136	178	134	108	133	92	120	105	116	116
340	81	74	75	88	49	108	110	117	113	89
350	94	103	105	66	97	123	122	152	137	72
360	132	45	38	60	90	52	57	91	93	44
370	08	119	95	74	134	44	57	56	58	84
380	88	129	31	84	121	75	160	156	129	111
390	94	103	84	93	134	74	106	126	136	110
400	82	128	108	62	154	143	161	186	158	155
410	109	138	147	129	162	153	143	118	98	94
420	105	132	145	08	117	131	87	14	137	87
430	141	16	101	158	192	205	154	137	87	103
440	94	160	93	131	135	130	93	37	95	74
450	125	116	30	74	80	38	76	57	117	146
460	97	54	104	60	108	134	84	71	90	78
470	95	90	66	61	76	94	83	129	120	106
480	62	89	114	90	146	110	107	100	88	114
490	109	126	151	58	134	125	126	103	110	123
500	49	92	124	106	153	115	93	98	48	105
510	129	97	71	19	55	55	39	48	80	50
520	36	87	132	144	105	83	31	78	94	85
530	143	68	131	115	100	74	34	142	135	121
540	100	127	58	58	81	90	114	167	158	147
550	126	147	146	104	52	126	107	128	93	103
560	106	79	125	35	99	82	126	114	36	97
570	106	124	115	110	159	160	119	104	70	77
580	89	84	82	106	45	113	148	204	108	182
590	65	93	148	138	143	138	85	108	88	57
600	141	127	128	78	89	123	56	109	114	119
610	98	31	88	91	50	25	66	68	98	102
620	22	136	133	139	94	82	49	112	150	125
630	15	132	105	82	67	140	176	236	170	111
640	68	186	123	123	92	49	98	68	86	116
650	93	49	90	84	75	134	111	81	77	113
660	23	85	82	75	72	170	165	166	160	85
670	68	89	103	104	85	105	102	48	32	133
680	70	103	154	137	154	80	37	47	62	103
690	55	76	39	48	62	133	84	126	125	132
700	128	144	104	140	12	64	04	16	76	36
710	72	64	28	104	132	104	108	72	68	72
720	144	152	92	56	32	132	140	168	272	180
730	248	244	172	176	180	88	96	132	00	96
740	92	00	00	80	48	132	156	108	102	144
750	72	32	60	60	36	84	112	40	88	128
760	164	128	92	92	76	144	148	152	172	76
770	48	24	100	44	.....	.....	.....	.....	.....	.....

*The number of trees on which these indices are based may be obtained, for any date, by inspection of the figure.

BASKETMAKER II DWELLINGS NEAR DURANGO, COLORADO

EARL H. MORRIS

On the basis of archaeological evidence, occupation of the Falls Creek Caves and the side-hill site, Ignacio 7:101[1] was culturally contemporaneous. There is strong probability that both caves and hillside were synchronously inhabited. But in view of the likelihood that culture changes were occurring relatively slowly at so early a level, it would not be surprising if dates from the two should show a difference of a century or two. Nor would it be cause for doubt or astonishment if occupation of one or both should be proved to have extended over a considerable length of time.

The culture represented, despite a few minor deviations, clearly falls into Basket Maker II of the Pecos classification. Ranking traits are: Absence of pottery, hafted axe and hammer; presence of atlatl, fur-string blankets, sandals and loin cloths, human hair cordage, twined bags, animal hair sashes, coiled basketry, rush matting, flexible cradle board, bone gaming pieces, tubular pipe, *olivella* shell, stone and juniper berry beads, extensive use of tanned hides, untailored, corn and squash or pumpkin as cultivated foods. Burial was at random — in rock crevices, abandoned storage cists and refuse.

The sites in question broaden the accepted picture of Basket Maker II culture by adding to it a definite style of domestic architecture. The roughly circular single-roomed dwellings were up to 25 feet or more in diameter. The mud plastered floors were shallow saucer-shaped, with a heating pit at or near center. Interior storage bins were many and of four kinds: large, deep, jug-shaped pot holes, slab-lined pits, slab-lined pits surmounted by above-floor mud domes, and mud domes entirely above floor level.

Walls were of wood-and-mud masonry. The upturn at the periphery of the floor ended against horizontal foot logs. Above these were laid, also in horizontal position, pieces of wood of any sort available, from thick twigs to slabs from lightning-riven pines, more or less overlapping and interlaced. Mud was used to fill all interstices and roughly to chink and point the surfaces. Presumably the encircling wall rose with an inward batter to what may be considered ceiling height. It supported a cribbed roof suggestive in plan of the kiva roofs of later times. Thus interior vertical roof supports, like those characteristic of Basket Maker III dwellings, were not needed. No walls were found standing to a height sufficient to reveal the shape and orientation of the entrances.

Should these Basket Maker II dwellings near Durango be regarded merely as a local phenomenon? Or do they exemplify a type that was in general use over the entire Basket Maker II domain? Results of future observation must be depended upon to provide a positive answer to these queries, but to the writer, the latter would seem the most probable alternative. Why, then, have examples not been found elsewhere? Most likely because, under average conditions, remains of them would be impossible to identify. On a level site, the excavation made to accommodate one of the saucer-shaped floors would have been around 15 inches deep. With the timber rotted away, the mud of walls and roof would have been about enough to refill the excavation, leaving neither mound nor pit to mark the spot. And even if the timber had burned, after 1600 years of erosion, action of frost and roots, and the burrowing of rodents, there would remain only bits of charcoal scattered through mixed earth, with little to suggest to

[1] So designated by the Gladwin survey of the region.

Fig. 1. Floor 1a at site IGN 7:101.

what the timbers of which they were vestiges once pertained. Relatively deep burial of such a site would afford the only circumstances under which its features might remain distinguishable.

This requirement was fulfilled at the sites near Durango, particularly at 7:101. Aboriginal procedure there was as follows: A drift was cut into the steep talus and the earth removed was heaped on the slope in front until a terrace large enough to accommodate the projected dwelling had been provided. Fire destroyed the structures with great frequency. After such an event, the plan usually carried out was to sweep most of the debris of conflagration over the brink of the terrace, dig a little farther into the hill at a slightly higher level, spread the dug earth over the burned area, then build another dwelling on top of it. In one part of site 7:101 there were at least seven floors thus superposed. After final abandonment, rapid erosion of the very abrupt slope behind it quickly buried the site so that a gratifying number of its features were preserved until the time of excavation. It would seem justifiable to believe that inhabitation of the spot should be measured by centuries rather than by generations.

Floors 1, 2, and 3 were nearly at the same level in a row from 1 at the south to 3 at the north. Floor (room) 1a, outlined in the photograph, would appear to have been part of the last dwelling erected at 7:101. There were four older levels beneath it; and after the structure to which it pertained burned, there was no subsequent disturbance of the area it occupied. With latest construction for Floor 1a at shortly after A.D. 322, bark dates near A.D. 200 for Floors 2 and 3 occasion no surprise.