

EARTHQUAKES.

In April, 1903, a Milne seismograph belonging to the Seismological Committee of the British Association was transferred from Oahu College to the magnetic observatory. The pendulum points north, thus recording east-west motion. The period of the pendulum is kept between 19 and 20 seconds. The sensitiveness, i. e., the amount of tilt corresponding to a displacement of 1 mm in the end of the pendulum, was determined at various times as follows:

1913		"	1914		"
February 15.....		0.38	January 28.....		0.41
April 17.....		0.55	April 22.....		0.46
June 16.....		0.45	August 4.....		0.45
August 27.....		0.49	December 2.....		0.38
November 8.....		0.43			

In the following table the times of the phases are given in Greenwich mean time counted from midnight. It will be seen that many of the recorded disturbances are of short duration and small amplitude, in many cases a mere swelling of the line, without well-defined phases. In these cases the beginning has been tabulated as the beginning of the principal portion.

Register of earthquakes.

No.	Date	First P. T.	Large waves	Maximum	End	Maximum amplitude	Remarks
		begin	begin				
1913.		<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>mm</i>	
1149	Jan. 5	.. .. .	17 40.7	18 14.0	18 56	0.1	
1150	7	23 13.3	23 39.5	23 42.4	24 07	0.3	Second P. T. at 23:27.2.
1151	9	3 16.3	3 29.9	3 42.7	4 33	0.2	
1152	11	13 29.5	13 39.5	13 40.5	16 21	1.2	
1153	15	19 12.6	19 23.6	19 27.4	20 45	0.8	
1154	19	.. .. .	17 23.4	.. .. .	20 03	0.3	
1155	19	23 58.2	24 09.0	24 11.0	25 03	0.5	Second P. T. at 24:05.4.
1156	20	.. .. .	15 26.3	15 37.0	15 51	0.1	
1157	23	14 10.8	14 27.8	14 32.2	15 13	1.1	Second P. T. at 14:18.4.
1158	23	.. .. .	16 55.7	17 00.0	17 09	0.1	
1159	31	22 54.8	23 09.8	23 16.8	23 51	0.4	Second P. T. at 23:04.2.
1160	Feb. 7	3 19.5	3 28.2	3 33.0	4 21	2.2	Second P. T. at 3:24.3.
1161	11	23 57.6	24 18.6	24 22.6	24 47	0.1	
1162	14	.. .. .	19 16.1	19 20.8	19 26	0.8	
1163	15	19 18.9	19 23.9	19 24.5	19 28	0.5	
1164	15	21 16.1	21 23.4	23 26.1	21 33	0.1	
1165	20	9 16.0	9 23.2	9 28.0	10 49	0.6	
1166	23	3 17.3	3 33.7	3 36.0	4 37	0.3	
1167	27	21 32.7	21 44.8	21 48.6	22 01	0.3	
1168	Mar. 3	3 00.0	3 19.5	3 21.5	3 33	0.3	
1169	4	.. .. .	7 34.4	7 43.4	7 58	0.1	
1170	6	9 09.4	9 16.7	9 18.6	9 30	0.2	Second P. T. at 9:13.1.
1171	6	.. .. .	11 27.7	12 06.0	12 24	0.1	
1172	8	16 12.5	16 23.0	16 25.9	17 08	0.5	Second P. T. at 16:20.4.
1173	12	.. .. .	22 15.3	22 19.0	22 26	0.2	
1174	14	8 57.2	9 06.5	9 28.7	13 00	8.6	
1175	18	.. .. .	1 42.5	1 47.3	2 33	0.1	
1176	18	6 21.1	6 28.1	6 31.5	6 35	0.5	
1177	19	.. .. .	19 18.0	19 29.0	19 34	0.1	
1178	23	20 56.8	21 03.8	21 05.2	22 20	1.0	
1179	26	21 57.7	22 11.6	22 17.5	22 55	0.4	
1180	27	9 46.5	9 50.9	9 53.0	10 14	0.3	
1181	31	3 47.9	3 52.6	4 01.6	8 45	4.6	
1182	31	.. .. .	17 08.2	17 14.0	17 21	0.1	
1183	Apr. 3	0 12.6	0 22.1	0 30.0	0 52	0.1	
1184	4	.. .. .	14 09.7	14 16.7	14 38	0.1	
1185	7	14 04.8	14 12.4	14 18.4	15 12	2.0	
1186	8	2 38.0	2 48.1	2 52.0	3 31	0.6	
1187	9	.. .. .	16 55.1	16 59.2	17 15	0.2	
1188	9	.. .. .	.. .. .	18 32.5	20 00	0.2	
1189	10	.. .. .	0 55.0	0 58.0	1 02	0.1	
1190	11	9 44.0	9 52.8	9 58.0	10 15	0.2	
1191	11	15 13.0	15 30.4	15 33.5	15 56	0.1	
1192	12	10 52.8	11 03.0	11 07.0	11 24	0.1	
1193	13	6 59.7	7 08.1	7 15.5	8 01	0.5	
1194	13	.. .. .	13 07.3	.. .. .	13 21	0.1	
1195	14	.. .. .	8 22.9	8 31.2	8 52	0.2	

Register of earthquakes—Continued.



No.	Date	First P. T. begin		Large waves begin		Maximum		End	Maximum amplitude	Remarks
		h	m	h	m	h	m				h	m
	1913.								mm	
1196	Apr. 15	..	.....	0	19.4	0	22.5	0	30	0.2
1197	16	23	01.8	23	17.3	23	22.3	23	48	0.4
1198	18	2	19.2	2	27.1	2	31.0	3	19	0.3
1199	18	13	34.3	13	47.5	13	52.5	14	31	0.2
1200	18	19	14.3	19	37.5	19	41.5	20	40	0.4
1201	24	10	27.0	10	49.0	10	59.8	11	43	1.0
1202	24	12	27.6	12	50.5	13	03.6	13	22	0.5
1203	25	1	02.7	1	18.1	1	22.2	1	40	0.1
1204	25	18	08.2	18	30.0	18	36.8	22	04	6.4
1205	26	4	26.4	4	45.8	4	50.0	5	37	0.3
1206	28	..	.....	4	00.1	..	.....	4	30	0.1
1207	28	..	.....	12	47.5	..	.....	12	57	0.1
1208	28	19	00.5	19	18.2	19	25.5	19	45	0.3
1209	29	..	.....	3	30.0	3	55.1	4	13	0.1
1210	29	23	37.3	23	46.0	23	50.7	25	11	0.5
1211	30	11	41.3	11	48.4	11	53.3	13	17	1.0
1212	May 1	..	.....	22	11.4	22	15.4	22	20	0.1
1213	5	..	.....	3	52.3	3	56.0	4	01	0.1
1214	6	1	42.6	1	50.6	1	57.2	2	31	0.5
1215	7	0	13.0	0	26.5	0	34.0	1	03	0.2
1216	8	18	42.8	18	52.0	18	53.9	20	15	2.5
1217	9	6	01.5	6	13.0	6	17.0	6	28	0.1
1218	16	11	57.6	12	01.6	12	02.0	12	12	0.5
1219	17	..	.....	8	46.9	8	50.0	8	57	0.1
1220	18	2	18.5	2	33.1	2	40.0	5	03	1.7
1221	21	13	58.7	14	16.4	14	21.1	15	00	1.5
1222	21	..	.....	20	42.6	..	.....	21	34	0.1
1223	24	23	49.6	24	09.3	24	14.1	26	13	3.1
1224	25	..	.....	10	51.3	10	55.0	11	28	0.1
1225	27	..	.....	1	06.0	1	11.0	1	18	0.1
1226	29	13	50.1	14	05.4	14	13.2	14	51	0.4
1227	June 4	10	07.8	10	25.2	10	33.6	11	59	4.2
1228	4	..	.....	22	23.8	22	32.0	22	41	0.1
1229	6	3	04.7	3	11.6	3	15.5	3	22	0.1
1230	9	0	33.3	0	45.4	0	49.0	0	58	0.2
1231	11	6	15.1	6	23.0	6	29.7	7	08	0.9
1232	13	..	.....	3	43.8	4	02.0	4	48	0.1
1233	14	8	55.2	9	02.9	9	07.7	9	34	0.2
1234	14	..	.....	10	02.4	10	43.1	12	35	0.5
1235	17	..	.....	9	17.2	..	.....	9	49	0.1
1236	21	..	.....	21	16.5	21	22.0	21	41	0.1
1237	22	13	56.1	14	07.1	14	10.8	17	59	9.0
1238	26	5	06.2	5	15.1	5	16.5	9	51	7.2
1239	28	10	02.4	10	09.9	10	15.0	10	22	0.1
1240	July 1	4	12.0	4	22.8	4	27.5	5	13	0.6
1241	2	20	10.9	20	24.9	20	29.0	20	41	0.1
1242	6	16	25.8	16	50.9	16	52.7	17	16	0.8
1243	7	9	31.5	9	46.7	9	52.8	10	50	1.2
1244	7	17	45.9	17	59.9	18	11.5	19	49	1.8
1245	7	20	14.4	20	24.3	20	27.5	20	36	0.1
1246	8	..	.....	13	51.7	13	58.5	14	06	0.1
1247	8	22	17.3	22	33.4	22	39.4	23	42	1.6
1248	9	0	18.2	0	20.2	0	21.5	1	30	0.3
1249	12	10	33.6	10	49.4	10	55.9	11	45	2.0
1250	22	6	44.3	6	59.6	7	09.4	8	26	1.1
1251	23	18	37.3	18	40.8	18	41.6	19	29	0.4
1252	25	13	02.1	13	18.0	13	21.1	13	39	0.1
1253	28	6	03.3	6	21.1	6	27.4	8	22	0.7
1254	28	12	22.0	12	45.3	12	47.6	13	35	0.2
1255	31	..	.....	17	23.4	17	28.9	17	34	0.1
1256	Aug. 6	..	.....	12	21.0	12	26.5	12	31	0.1
1257	6	22	29.3	22	58.0	23	04.1	28	53	5.2
1258	7	15	01.0	15	20.4	15	22.4	15	47	0.3
1259	9	1	57.8	2	23.2	2	29.5	2	47	0.1
1260	11	6	45.0	7	10.3	7	15.4	7	30	0.2
1261	13	..	.....	5	13.5	5	30.6	6	51	0.5
1262	15	..	.....	19	28.5	19	35.2	20	22	1.2
1263	17	..	.....	15	16.4	15	19.6	15	23	0.2
1264	20	..	.....	11	53.2	11	56.0	11	59	0.2
1265	21	..	.....	22	11.4	22	15.1	22	19	0.1
1266	31	6	16.4	6	26.0	6	33.5	7	22	0.7
1267	31	17	30.6	17	41.6	17	46.2	18	34	0.8

Second P. T. at 19:23.8.
Second P. T. at 10:36.5.
Second P. T. at 12:36.6.

Second P. T. at 18:17.3.

Second P. T. at 18:49.0.

Second P. T. at 2:26.2.
Second P. T. at 14:06.8.

Second P. T. at 23:56.7.

Second P. T. at 10:16.1.

Second P. T. at 3:08.6.

Second P. T. at 14:02.0.
Second P. T. at 5:12.0.

Second P. T. at 16:35.4.
Second P. T. at 9:38.9.
Second P. T. at 17:53.0.

Second P. T. at 22:25.9.

Second P. T. at 10:41.4.
Second P. T. at 6:51.7.

Second P. T. at 6:09.7.
Second P. T. at 12:35.3.

Second P. T. at 22:39.2.
Second P. T. at 15:13.1.

Second P. T. at 19:19.8.

Second P. T. at 6:21.5.
Second P. T. at 17:36.8.

Register of earthquakes—Continued.

No.	Date	First P. T. begin		Large waves begin		Maximum		End	Maximum amplitude	Remarks
		<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>	<i>h</i>	<i>m</i>			
	1913.								<i>mm</i>	
1268	Sept. 1	..	.....	21	07.7	21	12.8	21	19	0.5
1269	2	..	.....	19	26.8	19	35.5	20	19	0.4
1270	3	20	00.7	20	14.8	..	.....	23	52	...
1271	4	..	.....	17	08.9	17	10.9	17	13	0.1
1272	10	..	.....	7	36.0	7	42.2	7	49	0.1
1273	13	2	24.1	2	38.0	2	50.0	2	57	0.4
1274	15	..	.....	5	57.5	6	02.5	6	12	0.2
1275	16	..	.....	13	30.3	13	38.0	13	48	0.1
1276	18	..	.....	12	23.1	12	26.3	12	36	0.2
1277	21	..	.....	3	11.6	3	14.0	3	20	0.1
1278	25	..	.....	21	28.6	21	34.8	21	44	0.1
1279	26	..	.....	9	38.0	9	43.5	9	52	0.1
1280	26	..	.....	11	33.9	11	38.0	11	42	0.1
1281	26	..	.....	21	56.2	22	03.0	22	13	0.1
1282	30	4	27.3	4	46.3	4	49.1	5	14	0.1
1283	Oct. 2	4	35.0	4	54.8	5	02.8	7	12	1.6
1284	3	0	32.6	0	46.3	0	49.2	1	11	0.2
1285	4	22	27.7	22	41.8	22	44.3	23	00	0.3
1286	6	22	24.3	22	26.7	22	28.6	22	38	0.2
1287	8	..	.....	6	06.1	6	07.5	7	06	0.4
1288	9	18	46.0	19	10.7	19	14.4	19	28	0.5
1289	9	..	.....	22	12.2	22	23.0	22	29	0.1
1290	9	22	52.4	23	00.3	23	05.7	23	40	1.8
1291	10	..	.....	22	56.1	23	02.9	23	09	0.1
1292	11	1	44.2	2	00.5	2	08.1	..	..	5.6
1293	11	4	02.3	4	33.1	4	39.7	..	..	17. +
1294	11	..	.....	9	27.0	9	27.8	10	50	1.5
1295	12	..	.....	17	20.2	17	21.2	17	49	0.4
1296	13	..	.....	8	59.7	9	05.2	9	15	0.6
1297	14	6	59.6	7	16.9	7	22.3	7	38	0.2
1298	14	8	05.9	8	24.1	8	31.1	11	09	3.4
1299	14	21	26.3	21	29.4	21	30.5	22	35	0.8
1300	18	..	.....	5	46.7	5	48.4	5	53	0.1
1301	22	6	52.1	7	02.0	7	02.9	8	11	0.2
1302	23	15	31.6	15	39.2	15	44.0	16	04	0.2
1303	25	..	.....	11	28.7	11	30.1	11	42	1.5
1304	26	22	59.5	23	06.9	23	08.3	23	15	0.3
1305	28	..	.....	15	59.5	16	04.0	16	14	0.1
1306	29	..	.....	4	35.8	4	40.9	4	44	0.1
1307	29	..	.....	4	57.0	5	02.1	5	11	0.1
1308	29	..	.....	5	18.9	5	32.1	5	38	0.4
1309	30	..	.....	7	34.0	7	38.7	7	48	0.1
1310	30	..	.....	12	51.9	12	56.5	13	05	0.3
1311	31	..	.....	14	35.4	14	38.3	14	42	0.1
1312	Nov. 2	..	.....	8	18.0	8	21.7	8	27	0.1
1313	3	..	.....	8	18.9	8	21.5	8	25	0.1
1314	4	10	23.7	10	42.5	10	47.0	12	33	0.6
1315	5	22	17.2	22	25.7	22	27.2	23	02	0.1
1316	6	10	35.6	10	38.6	10	39.2	11	54	0.2
1317	9	..	.....	4	14.5	4	22.1	4	44	0.1
1318	9	..	.....	14	11.5	14	14.4	14	20	0.1
1319	9	..	.....	16	30.1	16	32.7	16	37	0.2
1320	9	..	.....	19	29.7	19	33.5	19	42	0.2
1321	10	21	21.8	21	36.4	21	40.4	26	32	8.8
1322	11	12	50.4	13	00.5	13	03.1	13	20	0.3
1323	12	8	53.3	9	02.8	9	09.7	9	22	0.1
1324	13	..	.....	23	51.6	23	54.8	24	24	0.2
1325	14	11	48.4	11	52.8	11	53.4	12	04	0.1
1326	14	21	54.7	22	03.4	22	13.4	22	52	0.1
1327	14	..	.....	23	36.4	23	39.5	23	55	0.1
1328	15	5	36.5	5	53.0	5	56.1	8	28	1.4
1329	17	21	16.0	21	24.3	21	29.5	24	28	0.6
1330	18	12	25.9	12	32.0	12	37.5	12	44	0.3
1331	19	3	33.3	3	57.8	4	06.4	6	04	0.8
1332	19	..	.....	21	55.7	21	57.6	22	00	0.1
1333	23	21	33.0	21	41.7	21	45.8	23	13	0.6
1334	24	..	.....	2	35.6	2	38.6	2	43	0.1
1335	27	6	46.8	6	50.9	6	53.0	7	03	0.1
1336	29	1	47.4	2	03.2	2	06.9	3	02	0.4
1337	30	18	22.1	18	34.2	18	37.9	18	56	0.4
1338	Dec. 1	21	30.0	21	38.5	21	42.1	22	15	0.2
1339	3	8	33.2	8	40.3	8	43.5	9	05	0.2

Remarks

International
Seismological
Centre

Second P. T. at 20:08.2.

Second P. T. at 4:38.1.

Second P. T. at 4:45.3.

Second P. T. at 22:57.1.

Second P. T. at 1:52.2.

Second P. T. at 4:16.5.

Second P. T. at 8:18.0.

Second P. T. at 6:57.7.

Second P. T. at 15:35.8.

Second P. T. at 21:29.2.

Second P. T. at 12:55.0.

Second P. T. at 21:58.5.

Second P. T. at 5:44.1.

Second P. T. at 21:20.9.

Second P. T. at 3:42.6.

Second P. T. at 21:37.1.

Second P. T. at 1:57.6.

Second P. T. at 18:29.4.

Second P. T. at 21:35.1.

Second P. T. at 8:36.1.

Register of earthquakes—Continued.

No.	Date	First P. T. begin	Large waves begin	Maximum	End	Maximum amplitude	Remarks
		<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>h m</i>	<i>mm</i>	
	1913.						
1340	Dec. 6	--- ---	0 37.1	0 38.9	0 42	0.1	
1341	6	--- ---	14 29.5	14 35.4	14 44	0.4	
1342	10	6 18.3	6 30.8	6 42.2	8 04	0.5	Second P. T. at 6:25.5.
1343	11	--- ---	7 28.7	7 31.2	7 39	0.1	
1344	14	6 54.9	7 05.3	7 06.3	7 48	0.2	Second P. T. at 7:00.9.
1345	14	22 54.7	23 12.4	23 16.6	23 53	0.2	Second P. T. at 23:03.0.
1346	15	18 01.6	18 19.7	18 27.1	18 34	0.4	Second P. T. at 8:11.6.
1347	18	--- ---	12 36.8	12 38.4	12 43	0.1	
1348	20	--- ---	1 45.2	1 52.6	1 58	0.1	
1349	20	23 58.9	24 03.0	24 07.5	24 14	0.2	Second P. T. at 24:00.7.
1350	21	--- ---	10 40.0	10 42.1	10 54	0.1	
1351	21	16 02.7	16 24.2	16 29.9	18 16	0.5	
1352	23	2 57.0	3 11.2	3 13.2	3 33	0.1	
1353	25	7 17.5	7 44.7	7 47.8	7 59	0.2	
1354	29	10 04.3	10 11.0	10 16.5	10 34	0.3	
1355	30	--- ---	11 29.2	11 31.0	11 48	0.1	
	1914.						
1356	Jan. 3	9 27.0	9 38.2	9 50.2	10 26	0.1	
1357	3	18 45.9	19 05.5	19 14.4	19 40	0.1	Second P. T. at 18:52.1.
1358	11	9 22.0	9 27.9	9 29.0	9 32	0.1	Second P. T. at 9:25.5.
1359	12	9 48.2	10 00.9	10 09.0	10 56	0.4	Second P. T. at 9:54.0.
1360	13	3 06.4	3 16.4	3 17.0	3 37	0.1	Second P. T. at 3:13.4.
1361	15	19 24.5	19 32.4	19 43.9	20 33	0.2	Second P. T. at 19:28.4.
1362	20	12 15.2	12 22.0	12 30.5	15 00	0.6	Second P. T. at 12:18.9.
1363	21	3 19.6	3 31.6	3 35.2	3 44	0.1	Second P. T. at 3:25.4.
1364	26	22 36.1	22 44.3	22 48.1	23 49	1.0	Second P. T. at 22:40.9.
1365	30	3 50.3	4 13.9	4 36.0	7 36	0.9	Second P. T. at 4:00.6.
1366	30	8 00.4	8 16.7	8 25.4	10 15	0.5	Second P. T. at 8:08.0.
1367	31	--- ---	14 01.8	14 10.6	14 24	0.1	
1368	31	14 53.5	15 05.9	15 08.1	15 37	0.1	Second P. T. at 14:59.8.
1369	Feb. 7	7 06.9	7 13.8	7 21.2	8 05	0.3	
1370	7	--- ---	23 33.4	23 34.9	23 53	0.1	
1371	10	11 22.6	11 49.9	11 56.4	12 39	0.1	Second P. T. at 11:36.2.
1372	10	16 45.1	16 59.4	17 01.8	17 34	0.2	
1373	13	--- ---	16 52.3	16 56.1	17 05	0.2	
1374	14	7 20.8	7 30.8	7 34.7	7 58	0.1	
1375	15	1 23.4	1 29.2	1 30.3	2 33	0.2	Second P. T. at 1:26.9.
1376	16	11 46.1	11 55.4	12 00.6	14 07	0.3	Second P. T. at 11:51.3.
1377	22	--- ---	23 03.4	23 05.7	23 20	0.1	
1378	24	21 57.2	22 14.1	22 15.2	22 34	0.2	
1379	26	5 12.2	5 22.1	5 22.8	7 49	0.4	Second P. T. at 5:16.2.
1380	28	5 25.0	5 41.8	5 51.2	6 49	0.2	
1381	Mar. 3	--- ---	1 17.5	1 21.6	1 53	0.1	
1382	3	13 17.9	13 38.4	13 40.7	14 27	0.2	Second P. T. at 13:29.7.
1383	4	8 39.4	8 48.0	8 51.1	9 19	0.2	
1384	4	13 31.1	13 39.5	13 43.8	14 44	0.8	Second P. T. at 13:35.6.
1385	4	15 30.6	15 43.1	15 50.2	17 18	2.8	Second P. T. at 15:37.7.
1386	4	18 35.8	18 52.6	18 58.4	--- ---	0.8	Second P. T. at 18:47.7.
1387	6	--- ---	19 24.7	19 31.4	22 08	1.2	
1388	13	15 37.4	15 54.6	15 57.0	16 44	0.1	Second P. T. at 15:45.5.
1389	14	20 10.1	20 18.0	20 18.8	22 16	0.8	
1390	16	9 02.0	9 10.1	9 13.6	9 28	0.2	
1391	16	--- ---	21 03.2	21 05.9	21 48	0.1	
1392	16	--- ---	23 04.8	23 06.1	23 44	0.2	
1393	18	4 30.3	4 38.4	4 46.3	6 04	1.9	Second P. T. at 4:34.7.
1394	18	6 32.3	6 39.4	6 43.1	7 49	0.4	Second P. T. at 6:35.8.
1395	20	22 31.3	23 05.8	23 08.6	25 07	0.1	
1396	21	9 27.9	9 48.7	9 52.1	10 10	0.1	Second P. T. at 9:37.7.
1397	24	16 28.2	16 38.4	16 41.5	17 03	0.1	
1398	27	1 06.3	1 15.0	1 15.4	4 07	0.1	Second P. T. at 1:10.8.
1399	27	16 09.1	16 17.3	16 18.7	16 50	0.1	
1400	28	11 10.5	11 33.1	11 42.6	13 22	0.1	
1401	30	0 51.8	1 06.9	1 15.4	4 50	1.8	Second P. T. at 0:59.6.
1402	30	--- ---	6 34.6	6 36.3	6 47	1.5	
1403	Apr. 3	3 16.7	3 28.1	3 31.8	3 52	0.1	
1404	3	21 59.8	22 09.3	22 12.7	22 27	0.1	
1405	9	--- ---	2 19.4	2 26.0	2 34	0.1	
1406	9	3 52.0	3 58.0	4 03.2	5 17	1.1	Second P. T. at 3:55.4.
1407	9	9 35.0	9 41.1	9 43.0	10 25	0.2	Second P. T. at 9:37.8.
1408	10	--- ---	4 15.4	4 22.2	4 30	0.1	
1409	10	--- ---	21 24.1	21 33.5	21 46	0.1	

