SEISMOLOGICAL REPORT

JANUARY, FEBRUARY
MARCH
1927

SERIAL NUMBER 463

International Seismological Centre

UNITED STATES DEPARTMENT OF COMMERCE

COAST AND GEODETIC SURVEY

WASHINGTON, D. C.

Serial No. 463

UNITED STATES DEPARTMENT OF COMMERCE

COAST AND GEODETIC SURVEY

E. LESTER JONES, Director

International Seismological Centre

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JANUARY, FEBRUARY MARCH 1927

BY

FRANK NEUMANN

UNITED STATES GOVERNMENT PRINTING OFFICE

WASHINGTON : 1929

For sale by the Superintendent of Documents, Washington, D. C. - - - Price 10 cents

S E I S M O L O G I C A L R E P O R T

January, February, March, 1927.

International Seismological Centre

By Frank Neumann, United States Coast and Geodetic Survey.

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INTRODUCTION

The quarterly seismological reports of the Coast and Geodetic Survey are prepared in the division of terrestrial magnetism and seismology under the direction of Commander N. H. Heck, hydrographic and geodetic engineer, chief of division. R. R. Bodle assisted in the preparation of this report.

Preceding reports - Serials Nos. 328, 337, 363, 388, 395, 405, 424 and 431 cover the seismological work of the Coast and Geodetic Survey from July, 1924, to December, 1926, inclusive. They are essentially a continuation in new form of the seismological reports of the U. S. Weather Bureau which first appeared in the Monthly Weather Review in 1914. All publications available for distribution may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C.

NONINSTRUMENTAL REPORTS - TABLE I

Table I is primarily a register of information bearing on the observed intensity of earthquake vibrations. It is the only practicable means by which the relative intensity of earthquake shocks may be properly recorded for statistical purposes or for investigating the distribution of intensity in the case of individual shocks.

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The machinery for collecting this information is at present inadequate. In fact, only active cooperation on the part of the public will serve the purpose of the investigator satisfactorily. This is particularly true in sparsely populated regions. The Bureau, therefore, requests that anyone feeling or observing the effects of an earthquake shock send a report addressed to the Director, U. S. Coast and Geodetic Survey, Washington, D. C. for permanent abstracting in this publication. If forms are desired, they will be furnished upon request.

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The Rossi-Forel scale of intensities is used in tabulating the relative intensities of earthquake motions. Intensity evaluations in the fourth column of Table I are made in this office on the basis of the published abstract unless otherwise stated.

ROSSI-FOREL SCALE OF INTENSITIES

1. Microseismic shock. - Recorded by a single seismograph or by seismographs of the same model, but not by several seismographs of different kinds; the shock felt by an experienced observer.

2. Extremely feeble shock. - Recorded by several seismographs of different kinds; felt by a small number of persons at rest.

3. Very feeble shock. - Felt by several persons at rest; strong enough for the direction or duration to be appreciable.

4. Feeble shock. - Felt by persons in motion; disturbance of movable objects, doors, windows; cracking of ceilings.

5. Shock of moderate intensity. - Felt generally by everyone; disturbance of furniture, beds, etc.; ringing of some bells.

6. Fairly strong shock. - General awakening of those asleep; general ringing of bells; oscillation of chandeliers; stopping of clocks; visible agitation of trees and shrubs; some startled persons leaving their dwellings.

7. Strong shock. - Overthrow of movable objects; fall of plaster; ringing of church bells; general panic; without damage to buildings.

8. Very strong shock. - Fall of chimneys; cracks in the walls of buildings.

9. Extremely strong shock. - Partial or total destruction of some buildings.

10. Shock of extreme intensity. - Great disaster; ruins; disturbance of the strata, fissures in the ground; rock falls from mountains.

INSTRUMENTAL REPORTS - TABLE II

The analysis of seismograms of the Coast and Geodetic Survey observatories, the University of Chicago, and Harvard University is made at the Washington office of this Bureau. The only other reports published in full in this volume are from observatories which do not otherwise publish their results in permanent form.

The following observatories on the North American continent publish their own results, and inquiries in regard to them should be made directly to the institutions concerned or to the central stations:

United States: Georgetown, New York (Fordham), Berkeley and Mount Hamilton (both University of California), St. Louis, Denver, Mobile, Santa Clara, Spokane, New Orleans.

Canada: Halifax, Ottawa, Saskatoon, Toronto, Victoria, St. Anne. Halifax, Saskatoon, and St. Anne are subsidiary stations of the Dominion Observatory at Ottawa where the results of the four stations are analyzed and published.

Mexico and Central America: Tacubaya (Mexico City) and subsidiary stations.

According to the best information available, observatories not mentioned in this report have not yet published their results.

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QUARTERLY SUMMARY OF EARTHQUAKES - TABLE III

Table III is a chronological summary of earthquakes listed in Tables I and II. It includes only earthquakes recorded in or near the United States, its insular possessions, Alaska, Canada, and Mexico. All other earthquakes are intentionally omitted.

Local earthquakes in Hawaii and the Philippines and swarm types in California constitute problems for local study and are not included in this report. Local shocks in these regions are tabulated as a rule only when they are recorded at both local and distant observatories, or when reported as severe by local observers.

Table IIIa is a summary of earthquakes according to region. Table IIIb is a tabulation of epicenters determined almost wholly or in part from instrumental reports acknowledged at the end of this report. When epicenters from other sources are utilized, acknowledgment is made in Table III.

Computed epicenters are in every sense provisional. They are determined (1) to furnish other institutions and the public early information concerning earthquakes recorded at American observatories, or reported in the press, (2) to classify earthquakes according to region - Table IIIa, (3) to aid in the interpretation of other instrumental records, (4) to aid in appraising the performance of American seismological observatories, and (5) to locate and discuss purely domestic earthquakes. For final reports on epicenters readers are referred to the International Seismological Summary prepared at the University Observatory, Oxford, England. A table of epicenters is also published by the Dominion Observatory at Ottawa, Canada.

Table I. Non-instrumental earthquake reports.
January 1, 1927 to March 31, 1927.

International Seismological Centre

Earthquake Intensities (Abbreviated Rossi-Forel)

1. Felt only by an experienced observer, very faint.
2. Felt by a few persons at rest, faint.
3. Direction or duration appreciable, weak.
4. Felt by persons walking. Doors, etc. moved.
5. Felt by nearly everyone. Furniture moved.
6. Bells rung, pendulum clocks stopped. Alarm.
7. Fall of plaster, slight damage. Scare.
8. Fall of chimneys, walls cracked. Fright.
9. Some houses partly or wholly wrecked. Terror.
10. Buildings ruined, ground cracked. Panic.

The order of abstracting information in Source and Remarks column is:

1. Source.
2. Intensity.
3. Number of persons observing.
4. Number of persons alarmed.
5. Outside disturbances.
6. Inside disturbances.
7. Observed motion.
8. Number of shocks.
9. Sounds.
10. Topography and ground formation.

For further details see Report for July, August, September, 1925.

Key to Abbreviations in Table I.

abr - abrupt
aft - after
bef - before
bldgs - buildings
bmp - bump;-ed;-ing
crk - crack;-ed;-ing

exp - explosive
fnt - faint
grd - gradual
h - hours
hls - hills
ld - loud

m - minutes
mi - miles
mvd - mov;-ed;-ing
mts - mountains
nr - nearly
obs - observ;-ed;-er

pln - plain
pop - population
sev - several
rkd - rocked
rkg - rocking
rky - rocky
rmb - rumbling

rpd - rapid
rtl - rattl;-ed;-ing
s - seconds
scr - scraping
sft - soft
shk - shaken, shook

sl - slight
swa - sway;-ed;-ing
thn - thunder;-ous;-ing
trm - trembl;-ed;-ing
tws - twisting
val - valley

"p" indicates a press report.

"WB" is a symbol for the U. S. Weather Bureau which cooperates actively in collecting earthquake information.

"BSSA" refers to the Bulletin of the Seismological Society of America.

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

International Seismological Centre

DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
Jan.		ARIZONA		
1	8 17	Yuma	5	J.M. Gordon, WB. Many awakened, no alarm; trees swa; windows rtl, dishes did not; abr bmp in SW-NE direction; 4 quite heavy shocks; rmb subterranean sounds heard by nr all awake. After-shocks were at 10:11, 11:10, 11:30.
	8 17	do		P. 8 shocks felt between 9:17 and 14:10; no damage.
		CALIFORNIA		
	- --	Anaheim	2	P. Felt.
	8 18	Brawley	4	P. 4 heavy shocks felt, "more than a dozen" in all; no damage; "long drawn-out and sharp."
	8 18	Calexico	6	W. Von Mueller, WB. Felt by many; great damage; 75 or more abr rpd shocks including 5 major ones; duration from a few s to 2 m; one observer counted over 100 shocks in 24 h; ld rmb sounds before and with shocks; estimated intensity 9.
	8 18	Calexico	8	P. A series of severe earth shocks frightened pop; bldgs were vacated and many left town as shocks continued. About 20 bldgs were badly damaged by the earthquate and fires which resulted. Many walls were thrown down and practically every bldg in business section suffered some damage. Estimates of damage vary from $250,000 to $1,000,000. There were no fatalities but a few were reported injured by collapsing roofs and walls. Some water mains were apparently broken and the water service interrupted. Electric power service was not seriously interrupted. There is no gas service. The quakes which continued all of the following day were usually preceded by a subterranean rmb which ended in a noise like a thn clap just a few s before the shock.
	8 18	El Centro	7	P. People frightened and many left town or camped out over night. Many windows broken but little other damage resulted from the repeated shocks.
	8 18	Heber	7	P. Series of shocks felt at intervals of a few m. 5 bldgs seriously crk and telephone service interrupted.

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International Seismological Centre

DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
Jan.		CALIFORNIA		
(1)		Imperial	7	F.W. Irland, WB. Felt by many; main shocks lasted from 15 to 30 s; motion was bmp rkg trm tws N-S; fnt trm between shocks; intensity of shocks at 8:18, 9:15 and 13:00 about 7, at 9:05 and 10:10 about 6; fnt rmb sounds before and with shocks. Other shocks felt at 21:41 and 2:00 on Jan. 2.
		MEXICO		
	8 18	Mexicali	9	P. People in panic; many bldgs damaged by earthquake and fire; water mains broken, some bldgs destroyed, nr every bldg suffered some damage, 1 large brewery destroyed by resulting fire. Other shocks occurred at 9:18 and 10:10.
		Ensenada		P. Heavy swells prevent launching of small boats.
		CALIFORNIA		
2	16 --	Calexico	3	R. Thrasher, WB. Felt by sev; grd trm N-S, E-W; sev shocks; fnt rmb sounds.
		do	4	P. A number of jolts, sev severe, sent loose bricks, etc. flying into streets; widened existing cracks in buildings.
3	13 00	Calexico	4	P. Heavy aftershock; lighter shock at 15:45.
3	10 29	Eureka	4	L.R. Jones, WB. Felt by many, observer awakened; few alarmed; abr bmp followed by trm.
		WASHINGTON		
3	4 58	Leavenworth	4	H.S. Rearick, WB. Felt by many, few alarmed; windows rtl; pictures swa, furniture mvd; abr bmp few s; val rky. Felt most in southeast part of town near river.
		CALIFORNIA		
4	9 35	Fortuna		Felt.
		Rio Dell		Felt.
		Scotia	4	W.G. Corbitt, WB. Felt by sev, some awakened; sl crack in chimney reported; grd trm N-S; sev shocks; surface sounds; val clay.
4	9 35	Calexico		P. Light shock.

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

International Seismological Centre

DATE	TIME G. M. T.	LOCALITY	INTENSITY	SOURCE AND REMARKS
1927	h. m.			
Jan.		CALIFORNIA		
6	16 30	Imperial Valley	4	P. Sev fairly heavy shocks felt.
	16 45	Brawley	3	P. Light earthquake felt.
	16 45	Calexico	4	P. One sharp earthquake followed by lesser tremors startled residents.
	16 30	El Centro	4	P. Three jolts coming close together startled residents.
	16 37	Imperial	2	F.W. Irland. Felt by sev; abr trm; SE to NW.
		KANSAS		
7	9 30	McPherson	5	P. Felt by many, scores awakened; keystone in bank window fell out; dishes rtl; deep rmb sounds; pln. Tremor felt over rural districts about McPherson.
		CALIFORNIA		
7	23 52	Imperial	1-2	Wright, WB. Felt by sev; grd trm, 1 s.
8	7 29	Calexico		P. 3 minor shocks; no damage.
	7 29	Imperial	3-4	F.W. Irland, WB. Felt by many; grd trm, 6 s; E-W.
		CANADA		
9	4 45	Quebec	2	Report of Dominion Observatory, Ottawa.
		CALIFORNIA		
13	11 00	Brawley		P. Two sharp earthquakes felt.
	11 00	Calexico	6	P. Felt by all, residents rushed into open; windows, dishes rtl.
	11 00	El Centro	3-4	P. Heaviest shock since Jan. 1 felt here.
	10 47	Imperial	5	F.W. Irland, WB. Felt by many; grd trm, N-S, 3 s; fnt rmb before and during shock.
		ALASKA		
16	7 35	Wonder Lake		P. Anderson, WB. No details.
		ARIZONA		
16	19 05	Yuma	4	J.H. Gordon, WB. Felt by many; bldg creaked; mesa, rky.
		CALIFORNIA		
	19 05	Calexico	5?	P. Residents rushed into streets as nine shocks widened fissures and dislodged bricks in bldg damaged by Jan. 1 earthquake.
	19 05	Imperial	3	H. Wright, WB. Felt by many; rpd trm; E-W, 22 s. Another lighter shock at 19:46

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

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DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
Jan.		CALIFORNIA		
17	5 14	Imperial	2	H. Wright, WB. Felt.
18	11 30	Imperial	3	F.W. Irland, WB. Felt by many, abr trm, E-W, 3 s; fnt rmb sounds before and with shock. A similar shock at 14:42.
22	16 34	do	2	F.W. Irland, WB. Felt by sev; grd trm, 1 s; fnt rmb sounds before and with shock.
		ALASKA		
24	2 48	Haines	3	P. Distinct shock felt.
	2 45	Juneau	4	P. Distinct earthquake felt; dishes rtl, curtain swung.
	2 45	do	4	R.C. Mize, WB. Felt by many, like heavy blast; NE windows rtl; abr bmp, trm, NE-SW; hls, gravel.
	2 48	Skagway	3	P. Distinct shock felt.
		CALIFORNIA		
24	11 00	Imperial	1	R. Thrasher, WB. Felt by sev; grd trm 1 s; 5 shocks weak and close together; fnt rmb before shock.
		HAWAII		
26	13 50	North Kohala	4	B.D. Bond, WB. Felt by many; abr bmp; rtl sounds.
		CALIFORNIA		
29	23 25	Los Angeles	4	D.H. Merrill, WB. Felt by all except those in motion; grd trm, N-S; shrubbery swa; some people became nauseated.
	23 30	do		P. Light earthquake unnoticed by many, felt.
	23 24	Riverside		P. Most distant point at which shock was felt.
		OHIO		
29		Maximo (near Alliance)		P. Disturbance broke windows; doubtful if of seismic origin.
Feb.		MISSOURI		
1	1 30	Jackson	4	J. Putz, WB. Felt by many; furniture mvd; abr trm, 30 s; hls
3	8	Poplar Bluff	2	P. Sl tremors felt.

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DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
Feb.		CALIFORNIA		
4	10 20	Chualar	3	R.T. Robinson, WB. Felt by many, some awakened; abr trm, 3 to 5 s; val.
4	22	Altadena	2	P. Sl earthquake felt.
4	22	Los Angeles		J.J. Johnson. Abr bmp, 1 s.
4	22	do	3	P. Sl earthquake felt by numerous residents in SW section; more of a jolt variety.
4	22	Monrovia	2	P. Sl shock felt.
4	22	Santa Monica	2	P. Sl shock felt.
4	22	Sierra Madre	2	P. Sl earthquake felt.
4	22	Pasadena	2	P. Sl earthquake felt.
		DELAWARE		
5	3 to 10	Wilmington	3	P. Earth tremors felt all night over large area south of city. No explosions reported.
	10	Smyrna		P. Earth tremor felt.
		CANADA		
5	5 30	Quebec	2	Report of Dominion Observatory, Ottawa.
6	4 20	Quebec	2	Report of Dominion Observatory, Ottawa.
		CALIFORNIA		
7	4 26	Beverly Hills	3	P. Vibrations felt for 30 s.
	4 26	Hollywood	3	P. Reported light.
	4 28	Los Angeles	4	C.J. Derrick. One sharp shock, 10 s.
	4 28	do	4	P. Walls shk in SW part of city; dishes rtl.
	4 28	Santa Monica	4	P. Sharp earthquake accompanied by distinct rmb.
	4 28	Sawtelle	5	D.H. Merrill, WB. Felt by nr all; two theaters had near panics; beds shk, doors and windows rtl; grd trm, E-W, 15 s; pln hard.
8	6 25	Imperial	2	F.W. Irland, WB. Felt by sev; abr very rpd trm; E-W, 1 s; ld rmb sound before and with shock.
8	20 33	San Bernardino	2	P and BSSA. Sl shock felt by persons in upper stories. A lighter shock occurred 2 m later.
		CANADA		
10	0 40	Quebec	3	Report of Dominion Observatory, Ottawa. Two tremors.

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DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
Feb.		ARIZONA		
11	3 40	Nogales	2	M. Noon, WB. Felt by sev; sl swa; hls rky.
11	3 40	Patagonia	2	J.R. Collie, WB. Felt by sev; grd swa E-W; bldg swa, chairs, beds, etc., mvd; surface sounds heard.
		MEXICO		
11	3 41	Nacozri, Sonora	5	J.C. Anderson. Felt very strongly at Batamote Mine; trm tws wrench, 3 s; accompanied by noise. (Batamote mine is 8 mi N of Nacozari)
		CALIFORNIA		
12	8 46	Eureka	4	L.R. Jones, WB. Felt by many; abr rkg NW-SE; surface sounds; sandy pln.
		ARIZONA		
12	8 59	Yuma		WB. Felt by many, some alarm; sudden rkg, S-N; many heard rmb sound after shock.
		CALIFORNIA		
12	8 58	Brawley	5	P. Earthquakes were heavier than those felt Jan. 1.
12	8 58	Calexico	6	P. Plaster shk down; cornice damaged on Jan. 1 was shk down; loose bricks thrown down.
12	8 59	El Centro		J.M. Smook. Shocks felt at 8:59, 9:26, 9:43, 10:36, 11:50, 12:51, lasting respectively 50 s, 5 s, 5 s, 5 s, 25 s, 5 s.
12	8 55	Imperial	5	F.W. Irland, WB. Felt by many; abr trm and jerking, fully 50 s at intensity 6; ld rmb before and with shock; additional shocks at 9:08, 9:20; 9:35; 13:45 were of light intensity.
12	8 58	Imperial Valley		P. Series of heavy earthquakes lasting until 14 h rkd Imperial Valley.
15	6 19	El Centro		J.M. Smook. Duration 55 s; began 6:19:35.
15	6 17	Imperial	3	F.W. Irland, WB. Felt by many; grd trm; E-W, 6-8 s; fnt rmb before and with shock.
15	23 55	Chualar	4	R.T. Robinson, WB. Felt by many; trm N-S; val sandy.
15	23 54	San Francisco	2	E.P. Sullivan, WB. Felt by sev; chandeliers swa; rpd bmp trm; 3 shocks not felt on ground level.
15	23 55	do	2	P. Sl earthquake felt in N California. Origin in region 60 mi NW of city.
15	23 54	San Jose	4	E.S. Nichols, WB. Felt by sev; chandeliers swa sl;. rpd swa E-W; val alluvium.

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1927	h. m.			
Feb.		CALIFORNIA		
(15)		Sonoma		Reported in seismological register of University of California at Berkeley.
	23 55	Wrights	4	A. Postim, WB. Felt by many; abr rkg; rmb; mountain.
		OHIO		
17	5 30 to 6 00	Mansfield and localities nearby.	4	P. Sl earthquake awakened a number of people; houses swa; furniture mvd.
		CALIFORNIA		
22	10 49	El Centro		J.M. Smook. Duration of shock 45 s.
23	14 00	Brawley	4	BSSA. Sharp earthquake felt here and other Imperial Valley points.
		CANADA		
24	6 14	Quebec	2	Report of Dominion Observatory, Ottawa.
Mar.		CALIFORNIA		
2	15 00	Lassen National Park		BSSA. Six shocks at about 15 h and a more violent shock at 22:26. P. Only 2 of above shocks recorded on seismograph at Mineral.
		HAWAIIAN ISLANDS		
3	21 44	Hamukua, Hawaii	3	L. Hino, WB. Felt by sev; abr trm N-S; windows rtl; fnt sounds.
		CUBA		
4 to 8	4	Santiago and vicinity, especially Vista Alegra.	8	P. 15 shocks felt; pop in terror; walls damaged and many dishes broken.
		CALIFORNIA		
7	9 05	Ft. Bragg and Caspar	4	L.L. Carlson. Felt by many; windows, doors rtl; shk motion, few s. (Reported through M.W. Allen)
8	9 02	Ukiah	3	H.G. Wrocklage, WB. Felt by few; bld swa sl; 2 shocks, 1 and 2 s; val loam.

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International Seismological Centre

DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
Mar.		NEW HAMPSHIRE		
9	4 08	Concord	5	F.A. Gardner. Felt by many; few alarmed; coal slid down in bin, dishes rtl; rpd bmp; moderately ld bmp sounds.
9	4 08	do	5	E.C. Vose, WB. Felt by many, some alarm; abr bmp; bmp sound; pln sandy.
9	4 08	do	5	P. Felt with severity in all parts of town, many people in W Concord prepared to leave houses, police headquarters received many calls; walls shook, windows rtl; rmb sounds.
9	4 08	Manchester		P. Felt very faintly, if at all.
9	4 08	Pittsfield, Contoocook, Penacook, Bow, Epsom, Dunbarton, Pembroke, Keene and Franklin.		P. Felt.
		NEW YORK		
12	22 14	Canton	4	J.S. Hazen, WB. Felt by many; objects rtl in bldg; sudden abr trm; pln sandy. Another shock at 22:44.
14	14 15	do	4	J.S. Hazen, WB. Felt by many; no alarm; windows rtl, pictures swa; abr bmp; rmb sounds; pln sandy.
14	14 15	do	4	P. Sl shock lasting 15 s rtl dishes etc; rmb sounds.
14	14 15	Ogdensburg	3	P. Tremor felt, like passing of heavy truck.
14	14 15	Pierrepont, Morley		P. Tremors felt.
14	14 15	Potsdam	3	P. Tremors felt, bldgs rkd; like passing of heavy truck; rmb sounds like boiler explosion.
		CANAL ZONE		
15	5 40	Canal Zone and Panama	5	P. Sharp earthquake banged doors, rtl pictures, stopped clocks; no damage.
		KANSAS		
18	17 25	Highland	3	K.A. Robinson. Felt by few.
18	17 25	White Cloud	5	K.A. Robinson. Felt by pop; all loose articles rtl; grd trm; 3 s; hls soil.
18	17 25	do	5	P. Residents rushed out of homes; felt 3 1/2 miles from town.
		MISSOURI		
18	17 25	Oregon	2	R.A. Robinson. Sl tremor felt.

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
Mar.		HAWAIIAN ISLANDS		
20	15 20	Haiku, Maui	4	B. Scales, WB. Felt by many; rpd trm; pln.
20	15 15	Hamakua, Hawaii	4	L. Hino. 1 shock; ground trm N-S; felt by many; made loud sounds; hls sandy.
20	15 25	Hilo, Hawaii	3	C.E.K. Martin, WB. Felt by sev; grd trm; 3 clocks on higher levels stopped; pln rocky.
20	15 21	Honolulu, Oahu	4	P. Residents awakened, shock felt about equally in all parts of Island; many telephone calls to newspaper offices.
20	15 20	Kohala, Hawaii	4	B.D. Bond, WB. Felt by many; grd trm.
20	15 30	Kukuihaele, Hawaii	5	L. Hino, WB. Felt by nr all, many alarmed; grd, then rpd, then grd trm and bmp, 30 s; hills, rocky.
20	15 25	Waimanalo, Oahu	4	T. Beveridge, WB. Felt by many; grd trm; moderate bmp sounds before shock; val, rocky.
20	15 30	Waiohinu, Hawaii	4	W.H. Hayselden, WB. Felt by many; trees and poles swa sl; grd rkg and swa; two shocks; pln rocky.
		ALASKA		
22	12 31	Atka Island		G.R. Gardner, WB. Two light tremors.
		WYOMING		
24	21 10	Cheyenne	2	W.M. Goss, WB. Felt by at least 5; rpd trm, 5 s; plain.
24	21 10	do	2	R.A. Morton, J.R. Mothershead, WB. Felt by 2 persons on 4th floor; grd trm and bmp; 2 shocks; windows rtl.
		PORTO RICO		
24	21 30	Barros	2	O. Santiago, WB. Felt by sev; rpd trm.
24	22	Comerio Falls	3	H.M. Hazlut, WB. Felt by 25 per cent of pop; grd trm, two shocks; mts, rky.
24	22	La Isolina		WB. Light shock.
24	21 30	San Juan	3	WB. Felt by many in parts of city; grd trm, 1 m.
		ALASKA		
25	14	Chignik		I. Wallin, WB. Felt.
		WASHINGTON		
28	7 57	North Head	4	L.W. Gabriel, WB. Felt by many from Ilwaco to South Bend; windows, doors rtl; rpd swa; hls rky.

International Seismological Centre

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

International Seismological Centre

DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
Mar.		**WASHINGTON**		
(28)	7 57	Ilwaco, South Bend and Raymond	4	P. Sl shock; felt by many, some awakened; much kelp and seaweed washed up on beach next day.
		NEW YORK		
29	20 30	Syracuse	2	M.T. Frisbie, WB. Felt by few; val, alluvial.
29	20 30	do	3	P. Felt on south side of city; mvd furniture, shifted pictures.
		ALASKA		
30	8 00	Afognak		B.C. Parker, WB. Felt.
30	8 00	Cordova	4	Dr. Chase. Sudden jar, followed by tremors, E-W, 4 to 5 s; light fixtures swa; sound like grinding rocks.
30	8 00	do		P. Earthquake of 5 s duration shook radio station.
30	7 52	Anchorage		P. Distinct earthquake lasted 30 s.
30	8 05	Seward	4	P. Pronounced shock set lights swa in N-S direction.
		CONNECTICUT		
30	late	New Britian	4	P. Shock shook walls, windows, lockers in general hospital and police station; 1 man almost thrown from chair.
		MONTANA		
30	18 43	Kenwood (near Helena)	2	WB. Felt by sev; distinct shock, like jar, 1 s; preceded by muffled rmb sound; timbers creaked.
		CALIFORNIA		
31	14 30	San Jose	3	WB. Abr trm; glass doors rtl, etc.; val.
		NEW YORK		
31	21	Syracuse	2	H.J. Churchill, WB. Felt by few.
31	20 30	do	3	P. Earthquake lasting sev s swa pictures, opened doors, etc.

International Seismological Centre

Contributors of Press Clippings and Dispatches not mentioned in Table I.

O. S. Hill
F. Neumann
F. A. Tondorf
R. Q. Grant, WB
S. D. Flora, WB
J. A. Scarr, WB
E. C. Vose, WB
R. A. Wells, WB
M. R. Sanford, WB

Telegraphic press dispatches are received through the courtesy of Rev. F. A. Tondorf, S.J., Director of the Georgetown University Seismological Observatory.

Table Ia. Earthquakes of intensity V and over (Rossi-Forel Scale).

Date			Time G.M.T.	Locality	Epicenter		Area	Intensity
Year	Mo.	Day	h. m.		Lat. °	Long. °	sq. mi.	
1927	Jan.	1	8 17	Near Calexico, Calif.	33 N	116 W	1500	8
	Jan.	1	9 14	Near Calexico, Calif.	33 N	116 W	1500	8
	Jan.	7	9 30	McPherson, Kans.	38 N	98 W	Local	5
	Jan.	13	10 47 or 11 00	Near Calexico, Calif.	33 N	116 W	600	6
	Feb.	7	4 26	Sawtelle, Calif.	34 N	118 W	250	5
	Feb.	12	8 58	Near Calexico, Calif.	33 N	116 W	900	6
	Mar.	9	4 08	Concord, N. H.	43 N	72 W	2000	5
	Mar.	15	5 40	Canal Zone	9 N	79 W	Local	5
	Mar.	18	17 25	White Cloud, Kans.	40 N	95 W	Local	5
	Mar.	20	15 20	Hawaiian Islands	21 N	157 W	3000	5?

Table II. Instrumental Reports.

International Seismological Centre

NOTATION.

Beginning July 1, 1925, the notations used in instrumental reports of the Coast and Geodetic Survey will be those adopted by the International Seismological Association with modifications suggested by Rev. James B. Macelwane, S.J., and others.

1. Character of earthquake recorded:

I. Slight. II. Moderately strong. III. Violent.

d Local shock (origin less than 100 kilometers distant).

v Near shock (origin from 100 to 1000 kilometers distant).

r Distant shock (origin from 1000 to 5000 kilometers distant).

u Very distant shock or teleseism (origin more than 5000 kilometers distant).

2. Wave groups or phases:

P Normal first preliminary tremors; longitudinal waves that have passed below the continental layer.

$\overline{P}$ Individual or upper first preliminary tremors whose path lies wholly in the continental layer.

P' Longitudinal waves that have traversed the earth's core.

$R_1\overline{P}$ Upper first preliminary tremors reflected from the lower boundary of the continental layer.

$R_3\overline{P}$ Upper first preliminary tremors reflected from the upper surface of the continental layer.

PR_1 Longitudinal waves reflected once at the earth's surface.

PR_2 Longitudinal waves reflected twice at the earth's surface.

PR_3 Longitudinal waves reflected three times at the earth's surface.

P_cP Longitudinal waves reflected from the outer surface of the earth's core.

S Normal second preliminary tremors; transverse waves that have passed below the continental layer.

$\overline{S}$ Individual or upper second preliminary tremors whose path lies entirely in the continental layer.

$R_1\overline{S}$ Upper second preliminary tremors reflected from the lower boundary of the continental layer.

$R_3\overline{S}$ Upper second preliminary tremors reflected from the upper surface of the continental layer.

PS Waves transformed from longitudinal to transverse oscillation, or vice versa, through one reflection at the earth's surface being either PS or SP in true character.

Table II. Instrumental Reports.

NOTATION

International Seismological Centre

2. Wave groups or phases: (cont'd.)

PPS	Waves which have traversed two legs of their twice reflected paths as longitudinal and one leg as transverse waves, being PPS, PSP, or SPP in true character since these all have the same travel time.
SR_1	Normal transverse waves reflected once at the earth's surface.
SR_2	Normal transverse waves reflected twice at the earth's surface.
SR_3	Normal transverse waves reflected three times at the earth's surface.
S_cS	Normal transverse waves reflected from the outer surface of the earth's core.
$\overline{S_cP_cP}$	Waves which start with transverse vibration but on refraction into the core are changed to longitudinal, or which start as longitudinal and are refracted out as transverse.
$\overline{S_cP_cS}$	Waves which traverse the mantle at both ends with transverse vibration but are refracted through the core with longitudinal oscillation.
$\overline{S_cP_c}\overline{P_cS}$	Waves which traverse the mantle with transverse vibration, are refracted through core as longitudinal waves, and are reflected internally on its farther side.
L	Long waves of irregular form at the beginning of the surface phase or "main phase". See supplementary note.
M	Shorter and more regular waves of large amplitude in the surface group which travel more slowly than the L waves.
M_1, M_2, etc.	Individual waves of relatively great amplitude in the surface phase and usually in the M group.
C	Waves of the tail or end portion.
W_2	Surface waves traveling around the major arc to the station.
W_3	Surface waves returning to the station after a complete circuit of the globe.
F	End of discernible movement.

3. Nature of the Motion: (See also Supplementary Notations on next page.)

i	Impulsive and sharply defined beginning of a phase.
e	Poorly defined emergence of a phase.
A	Either (a) amplitude of earth motion measured from the position of equilibrium in microns (1 micron 1/1000 mm.), toward the north, east, or zenith, - toward the south, west, or nadir; or (b), when so marked, the trace amplitude or half range of movement of the pen on the record measured from the median line in millimeters.

Table II. Instrumental Reports.

NOTATION

International Seismological Centre

3. Nature of the Motion: (cont'd.)

A_E E-W component of A.

A_N N-S component of A.

A_Z Vertical component of A.

T Period of wave.

4. Deduced Data:

O Time of earthquake at epicenter (O_1 according to Klotz's tables; O_2 according to Macelwane's tables).

Arcual distance from the station to the epicenter. (Subscript references same as for O.)

5. Constants of Seismograph:

T_o Free or undamped period of the seismograph.

V Static magnification.

ɬ Ratio of successive damped amplitudes.

r Half width of zone within which friction will completely arrest the recording pen.

h Altitude of observatory above sea level.

Supplementary Notations.

Lq Surface (Love) waves of transverse type in which the earth particle oscillates in the horizontal plane perpendicular to the direction of propagation.

Lr Surface (Rayleigh) waves in which the earth particle describes a circuitous path in a vertical plane in the line of propagation. The horizontal motion in the line of propagation is approximately two-thirds of the vertical motion.

In this report phases are designated as above either (1) when the amplitudes on the two horizontal components point definitely to transverse or longitudinal motion, or (2) more particularly in the case of Honolulu, when the travel times correspond to established velocities over Pacific paths, approximately 4.5 km. per second for Lq and 4.0 km. per second for Lr. Seismographic records indicate the existence of several groups of waves of each type.

? An interrogation mark (?) before a phase indicates that the existence of a new phase is questioned. A similar mark after a phase indicates that the phase interpretation is questioned.

f An interference. n an emergence of nodal character.

Table II. Instrumental Reports.

BALBOA HEIGHTS, Canal Zone.

The Panama Canal, 19
R. Z. Kirkpatrick, Chief Hydrographer, In Charge.

International Seismological Centre

Lat. 8° 57.'6 N. Long. 79° 33.'5 W. h, 36 m.

Instrument	Component	Mass	T_o	V		
Bosch-Omori	EW	100 kg.	20 s.	35		
do	NS	100 kg.	do	35		

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Jan. 21	P_N	3 01 59				
	P_E	3 01 52				
	S_N	3 02 16				
	S_E	3 02 09				
	L_N	3 02 51				
	M_1N	3 03 40	20		40*	
	L_E	3 02 49				
	M_1E	3 03 29	20	70*		
	F_N	3 08 32				
	F_E	3 09 07				
Jan. 21	P_N	3 48 09				
	P_E	3 48 04				
	S_N	3 48 31				
	S_E	3 48 32				
	L_N	3 48 50				
	M_1N	3 49 03	20		23*	
	L_E	3 48 42				
	M_1E	3 48 52	20	30*		
	F_N	3 51 08				
	F_E	3 52 41				
Jan. 21	P_N	4 00 18				
	P_E	4 00 12				
	S_N	4 00 37				
	S_E	4 00 30				
	L_N	4 00 56				
	M_1N	4 01 25	20		70*	
	L_E	4 00 50				
	M_1E	4 01 16	20	104*		
	F_N	4 04 07				
	F_E	4 05 20				
Jan. 21	P_N	9 33 35				
	P_E	9 33 30				
	S_N	9 33 53				
	S_E	9 33 48				
	L_N	9 34 17				
	M_1N	9 34 48	20		120*	
	L_E	9 34 10				
	M_1E	9 34 34	20	460*		
	F_N	9 39 58				
	F_E	9 40 52				
Jan. 24	P_N	15 20 36				
	P_E	15 20 38				

(continued)

* indicates trace amplitude in one-tenth millimeters.

Table II. Instrumental Reports.

BALBOA HEIGHTS, Canal Zone.

The Panama Canal, 20
R. Z. Kirkpatrick, Chief Hydrographer, In Charge.

International Seismological Centre

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Jan. 24		(continued)				
	S_N	15 21 17				
	S_E	15 21 18				
	L_N	15 21 23				
	M_{1N}	15 21 37	20		29*	
	L_E	15 21 23				
	M_{1E}	15 21 35	20	20*		
	F	15 23 48				
Jan. 28	e_N	13 01 08				Distance and direction unknown.
	e_E	13 01 06				
	F	13 03 59				
Feb. 5	P_N	23 14 27				
	P_E	23 14 13				
	S_N	23 14 40				
	S_E	23 14 33				
	L_N	23 15 07				
	M_{1N}	23 15 10	20		92*	
	L_E	23 14 57				
	M_{1E}	23 15 00	20	90*		
	F	23 19 42				
Mar. 9	P_N	16 13 25				*Stylus off drum.
	P_E	16 13 24				
	S_N	16 14 32				
	S_E	16 14 32				
	L_N	16 14 52				
	L_E	16 14 40				
	M_{1E}	16 15 24	20	360*		
	M*					
	F	16 28 00				
Mar. 15	P_N	10 39 02				
	P_E	10 39 05				
	S_N	10 39 38				
	S_E	10 39 41				
	L_N	10 39 43				
	M_{1N}	10 40 00	20		380*	
	L_E	10 39 53				
	M_{1E}	10 40 13				
	F	10 47 00				

* indicates trace amplitude in one-tenth millimeters.

CAMBRIDGE, Massachusetts. K. F. Mather, In Charge.

Lat. 42° 22.'6 N. Long. 71° 07.'0 W. h, 5 m.

Instrument	Compo-nent	Mass	T_o	V		
Bosch-Omori	EW, 3°S	100 kg.	10 s	80		
do	NS, 3°E	100 kg.	15 s	50		

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Jan. 1	eLq_E	8 35.8	5	2*		Calexico.
	Lq_N	8 35.8	5,12?		5*	VL_q = 3.52 and 3.47 Km/Sec.
	$ifLq_N$	8 36 01	12			
	M_{1N}	8 36.3	12		20*	
	Lr_E?	8 36 45	10	2*		
	?Lr_E?	8 37.2	8	2*		
	Lr_E	8 38 40	10	4*		
	F	8.8				
Jan. 1	Lq_E	9 32.5	5	2*		Calexico.
	eLq_N	9 32 40	5,12?		6*	VL_q = 3.51 and 3.43 Km/Sec.
	$ifLq_N$	9 33 09	12			
	M_{1N}	9 33.4	12		26*	
	eLr_E?	9 33 32	10	3*		
	eLr_E?	9 34.2	8	2*		
	M_{1E}	9 35.6	12	3*		
	F	9.8				
Jan. 24	ePS_E?	1 38.3	12	3*		
	SR_{1E}	1 43 22				
	SR_{1E}	1 44.1	25	6*		
	eL_E	2 04.3	40	2*		
	eL_E	2 08.7				
	eL_E	2 16.6	28			
	M_{1E}	2 19.6	20	5*		
	F	3.5				
Feb. 1	eL_N	18 56				Masked by artificial disturb-ance.
	eL_E	18 58.8				
	M_N	19 00.9	20			
	eL_E	19 03.0	21	10*		
	M_{1N}	19 03 54	20		20*	
	F	19.7				
Feb. 16	S_E	1 58 05				
	iS_N	1 58 11				
	eL_N?	2 09.2	11			
	eL_E	2 22.2	13			
	M_{1E}	2 26.8	17	5*		
	eL_N	2 23.0	15			
	M_N	2 31.7	16			
	M_{1N}	2 33.0	16		10*	
	M_{2E}	2 33.8	14	9*		
	F	2 14				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. Harvard Seismograph Station.

CAMBRIDGE, Massachusetts. K. F. Mather, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Mar. 7	eS_E?	9 53 00				NS lost.
	eL_E?	10 12.3				
	L_E	10 18 21	28	20*		
	e_E	10 23 01				
	M_{1E}	10 23 33	16	77*		
	F	? (clock stopped)				
Mar. 21	eL_E	16 19.6	14	1*		
	eL_N	16 21.7	18		3*	
	F	16.6				
Mar. 24	?eL_N	13 24.5	7?		4*	No record on EW.
	F	13 48				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

CHELTENHAM, Maryland. G. Hartnell, In Charge.

Lat. 38° 44' N. Long. 76° 05.'5 W. h, 72 m.

Instrument	Compo-nent	Mass	T_o	V		
Bosch-Omori	EW	10 kg.	15 s.	10	Undamped	
do	NS	do	15 s.	10	do	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Jan. 1	eL_N	6 35 54	3,9		1*	
	F	6 37				
Jan. 1	Lq_E	9 30 22	3	1*		
	Lq_N?	9 30 22	4		1*	VL_q = 3.45 Km/Sec.
	L_E	9 30 38	3	1*		
	L_N	9 30 44	11		1*	
	L_E	9 31 31	3	1*		
	L_N	9 31 48	9			
	M_{1N}	9 32.1	9		3*	
	F	9.6				
Jan. 24	eL_N	2 10.2				NS record weak.
	eL_E	2 10.6				
	M_{1E}	2 14.9	17	3*		
	eL_N	2 17.4	17		1*	
	L_E	2 18.4	16	2*		
	F	2.6				
Feb. 16	eS_E	1 58.2				Activity on EW almost imperceptible.
	L_N	2 28.6				
	L_N	2 33.1	16		1*	
	F	2 51				
Mar. 7	eL_E	10 11.8				
	eL_N	10 17.6				
	eL_N	10 23.6				
	eL_E	10 23.4				
	M_{1E}	10 24.9	18	5*		
	eL_N	10 25.6				
	M_{1N}	10 29.9	17		4*	
	F	11.1				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U. S. Weather Bureau.

International Seismological Centre

Lat. 41° 47' N. Long. 87° 37' W. h, 180 m.

Instrument	Compo-nent	Mass	T_o	V		
Milne-Shaw *	EW	1 lb.	12 s.	150	20:1	
do	NS	1 lb.	12 s.	150	20:1	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
Jan. 1	eS_E	8 26.7	11?	3		
	$?e_N$	8 29 16				VL_q = 3.55 and 3.42 Km/Sec.
	Lq_E	8 29.6	5	1		VL_r = 3.10 Km/Sec.
	Lq_N	8 29 38	6?			
	Lq_E	8 30 04	10			
	M_{1E}	8 30.7	10	8		
	iLq_N	8 30 04	11			
	M_{1N}	8 30.8	10		27	
	iLr_E	8 31 22	10			
	M_{2E}	8 31.8	10	16		
	fL_E	8 32.7	7	9		
	e_N	8 32.7	10		5	
	F	8.7				
Jan. 1	$?e_N$	9 23 49	12?			
	eS_E	9 24.5	13	2		VL_q = 3.55 and 3.42 Km/Sec.
	$?e_N$	9 25 45	6		1	VL_r = 3.12 Km/Sec.
	$?e_E$	9 25 58	6	1		
	Lq_E	9 26 26	6	3		
	Lq_N	9 26 20	6		7	
	eLq_E	9 26 52	11			
	M_{1E}	9 27.5	11	9		
	iLq_N	9 26 50	11			
	M_{1N}	9 27 12	11		28	
	iLr_E	9 28.1				
	M_{2E}	9 28.3	10	12		
	eL_N	9 28.5?	10		8	
	fL_E	9 28.8	7	14		
	$?eL_E$	9 29 20	7	8		
	F	9.9				
Jan. 1	eLq_N	9 44.7	11		3	Practically nothing on EW.
	F	9 52				
Jan. 1	$?e_E$	10 09				Practically nothing on EW.
	$eLq_N?$	10 16.2	10		2	
	F	10 20				
Jan. 1	$eLq_N?$	10 44 42	10		3	Not perceptible on EW.
	F	10 48				

* indicates trace amplitude in one-tenth millimeters.

CHICAGO, Illinois. H. J. Cox, U. S. Weather Bureau.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
Jan. 1	e_N	13 11.2				
	Lq_E	13 11 39	10	2		
	iLq_N	13 11 35	11			
	M_{1N}	13 11.8	11		7	
	Lr_E?	13 12 53	9	3		
	fL_N	13 13 21	9		2	
	F	13 20				
Jan. 4	L_E	0 04.3				NS record lost.
	M_{1E}	0 05 26	10	11*		
	F	0 13				
Jan. 7	L_E?	9 28 22				Calexico.
	iL_N	9 28 22	10		8	
	iL_E	9 28 42	14	8		
	iL_E	9 29 58	9	9		
	L_N	9 29.9	8		8	
	F	9 36				
Jan. 7	eL_E	11 11.0	23	7		NS lost by overlap.
	L_E	11 13.5	15	4		
	F	11.5				
Jan. 14	eL_E	2 46.5	7	3		Calexico. Trace badly dis-
	eL_N	2 46.7	9		3	turbed by wind tremors.
	F	2 54				
Jan. 19	?e_N	1 25.0				Calexico.
	e_E	1 26 38	10?	2		
	i_N	1 27 35	7		3	
	e_E	1 28 27	11	3		
	eL_E	1 30.8	?			
	eL_N	1 30.7				
	M_{1E}	1 32 04	10	4		
	M_{1N}	1 32.1	10		4	
	e_E	1 33.7	9	3		
	F	1 41				
Jan. 19	L_E	2 37.4	11	3		Calexico.
	eL_N	2 37.3				
	M_E	2 39 24	10	5		
	M_{1N}	2 37 49	10		4	
	F	2 43				
Jan. 24	ePR_{1E}	1 25 03	7	1		
	?S_N	1 32 10				
	PS_E	1 34 32	37	73		
	SP_N	1 34 17	7		3	
	$\overline{P_cP_c}\overline{P_cP_N}$?	1 34.9	6		5	
	iSR_{1E}	1 41 16	14,38	19*		

(continued)

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U. S. Weather Bureau.

International Seismological Centre

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
Jan. 24		(continued)				
	SR_{2E}	1 44.4	45	55		
	SR_{3E}	1 48.9	35	30		
	eLq_N	1 53.0	50		60	
	e_N	2 02.0	20		10	
	eL_E	2 04.9	19			
	M_{1E}	2 10	19	86		
	M_N	2 05.4				
	M_{1N}	2 08.2	18		15	
	F	4.2				
Jan. 24	PS_E	7 11 20				NS record lost.
	SR_{1E}	7 18.0	20	8		
	M_E	7 43.1	18			
	M_{1E}	7 45.5	19	10		
	F	8.6				
Jan. 25	PS_E	8 22 03				Only a trace of L activity on NS.
	SR_{1E}	8 28.3	19	3		
	eL_E	8 54.3	19	5		
	F	9.5				
Jan. 25	eL_E	24 12.0				NS record lost.
	M_{1E}	24 14.5	17	7		Activity masked by wind tremors.
	F	24 50				
Jan. 26	SR_E	16 21.1				
	eL_E	16 31				
	eL_N	16 34.0				
	M_{1N}	16 39.5	18		4	
	eL_E	16 37.3				
	M_{1E}	16 42	18	8		
	F	17.2				
Jan. 31	e_E	8 31.1	2?			Overlap on NS.
	L_E	8 31 50	10	2		
	F	8.8				
Feb. 1	eL_N	18 52.5				EW record lost.
	M_{1N}	18 55.5	22		14	Activity masked by severe wind tremors.
	F	20?				
Feb. 3	eL_E	4 46.2				
	M_{1E}	4 51.2	17	6		
	L_N	4 46.4				
	M_{1N}	4 58.0	14		3	
	F	5 17				
Feb. 4	$?PS_E$	3 18.4				NS record lost by overlap.
	SR_{1E}	3 24.4	19	9		
	eL_E	3 43.3	29			
	M_{1E}	3 47.0	26	19		
	F	4 22				

* indicates trace amplitude in one-tenth millimeters.

CHICAGO, Illinois. H. J. Cox, U. S. Weather Bureau.

International Seismological Centre

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
Feb. 12	S_E	9 08 04	5	2		
	L_E	9 11.2	10	3		
	L_N	9 11.3	11		3	
	F	9.3				
Feb. 16	O_1	1 34 59				Δ_1 = 8400 km.
	O_2	1 35 08				Δ_2 = 8220 km.
	P_E	1 46 41	6	1		
	iP_N	1 46 41	6		1	
	iS_E	1 56 21	11	21		
	eS_N	1 56 28	12		12	
	$?e_E$	1 58 54	11	5		
	SR_{1E}	2 01.2	10	5		
	SR_{1N}	2 01.2	10		6	
	e_N	2 02.8	12		5	
	eLq_E	2 10 56	35	71		
	M_{1E}	2 22.4	15	36		
	eLq_N	2 10.5	33		10	
	M_{1N}	2 22.1	17		29	
	F	5.0				
Feb. 24	$eS_E?$	4 25.6	11	3		
	$S_N?$	4 24 35	20			
	e_E	4 29.6	10	2		
	eL_E	4 31.9	13	4		
	eL_N	4 32.1	18		8	
	F	4.9				
Feb. 27	L_E	4 14.0	17			NS record lost.
	M_{1E}	4 16 11	17	7		
	F	4.6				
Feb. 28	O_1	14 08 00				Δ_1 = 7600 km.
	O_2	14 08 27				Δ_2 = 7460 km.
	iP_N	14 19 19	6		1	Wind tremors troublesome.
	e_N	14 28.0	8		1	
	iS_E	14 28 22	10	11		
	iS_N	14 28 19	7		8	
	eSR_{2E}	14 36.5	22	12		
	eSR_{2N}	14 37.0	21		6	
	e_N	14 40.4				
	M_{1E}	14 44.0	25	15		
	L_N	14 43.0				
	eL_E	14 52.0	20	10		
	M_{1N}	14 49.5	25		15	
	F	15 21				

* indicates trace amplitude in one-tenth millimeters.

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U. S. Weather Bureau.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
Mar. 1	e_E	3 17 24	6	1		Felt in Cuba.
	e_N	3 17 24				
	i_E?	3 20 08				
	Lq_E	3 20.4	20			
	M_{1E}	3 21 24	17	13		
	Lq_N	3 20.4	20		8	
	F	3 38				
Mar. 3	$e\overline{S_cP_cS_N}$	1 31.4				
	eSR_{1E}	1 45.4				
	eSR_{1N}	1 45.4	30		17	
	eL_E	2 00.4	30			
	eL_N	2 00.4	30?			
	eLq_E	2 02.6	60			
	M_{1E}	2 05.1	50	140		
	Lq_N	2 02.6	65		50	
	M_{1N}	2 05.4	35		60	
	Lr_E?	2 11.9	30	50		
	F	3.2				
Mar. 5	e_E	4 22 42	5	1		Felt in Cuba.
	e_N	4 22 42	6			
	Lq_N	4 25.5	20		10	
	eLq_E	4 25.5	20	12		
	Lr_E	4 27.9	15			
	M_{1E}	4 28.4	14	13		
	Lr_N	4 27.9	15			
	M_{1N}	4 28.5	10		8	
	F	4.9				
Mar. 6	O_1	1 33 44				Δ_1 = 4220 km.
	O_2	1 33 22				Δ_2 = 4390 km.
	P_E	1 41 08	7	1		Nothing definite on NS.
	PR_{1E}	1 42 30	8	2		
	iS_E	1 47 08	10	3		
	eLr_E	1 51.2	40			
	eL_N	1 52	15		4	
	M_{1E}	1 53.6	20	10		
	F	2 08				
Mar. 7	$\overline{S_cP_cS_E}$	9 51.3				
	$\overline{S_cP_cS_N}$	9 51.3				
	iS_E	9 52 08	9	8		
	iS_N	9 52 08	12		12	
	e_E	9 52.7	15	12		
	ePS_E	9 53.3	16	32		
	ePS_N	9 53.2	16		21	
	eSR_{1E}	9 58.7	20	48		
	SR_{1N}	9 58.4	19		25	
	Lq_E	10 12.3	30	125		
	Lq_N	10 12.3	30		125	

(continued)

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U. S. Weather Bureau.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
Mar. 7		(continued)				
	M_{1N}	10 28.7	22		115	
	Lr_E	10 17.1	30,10			
	M_{1E}	10 23.7	18	140		
	F	12.2				
Mar. 9	O_1	16 13 09				Δ_1= 3690 km.
	O_2	16 12 54				Δ_2= 3890 km.
	ePN	16 20 04	5		1	
	PR_{1N}	16 21 22	7		2	
	iS_E	16 25 33	6	3		
	iS_N	16 25 33	5		1	
	SR_1, Lq_E	16 28.3	?	12*		
	SR_{1N}	16 28.3			3*	
	M_{1N}	16 34.5	19		16	
	Lq_E	16 31.1	22	14		
	Lq_E	16 32.7	18			
	M_{1E}	16 33.2	19	58		
	F	16.8				
Mar. 13	SR_{1N}?	5 52.0	18?		3	
	eLq_E?	5 56.9	17	4		
	eLr_N?	5 58.7	25		3	
	F	6 10				
Mar. 13	eL_E	8 39.0	15	5		This may be S. Only traces of L activity in latter portion of record. Wind tremors troublesome.
	L_N?	8 39.0	20		8	
	F	9.5				
Mar. 15	Lq_E	10 53.3	15			F lost in overlap.
	eLq_E	10 57.9	15	2		Felt in Canal Zone.
	Lr_N	11 00.3	15		4	
	F	11 08				
Mar. 20	eSR_{1E}?	16 45.8	19	9		Felt. NS record lost in overlap.
	SR_{2E}?	16 49 12	19	7		
	L_E	16 55.0	19	9		
	F	16 20				
Mar. 21	Lq_N	16 11.1	40?		8	
	?Lq_E	16 11.5	40?	8		
	Lr_E	16 20.3	25	9		
	Lr_N	16 20.3	25		6	
	M_{1N}	16 31.0	21		8	
	Lr_E	16 32.1	20			
	M_{1E}	16 33.5	19	14		
	F	17.3				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U. S. Weather Bureau.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
Mar. 22	S_E	1 17 10				
	S_N	1 17 10				
	Lq_E	1 27.0	25	9		
	Lq_N	1 27.0	20		2	
	L_E	1 31.9	17	7		
	L_N	1 31.9	17		7	
	Lr_E	1 35.6	15	6		
	M_{1E}	1 41.0	17	7		
	Lr_N	1 35.2	20			
	M_{1N}	1 36.0	20		12	
	F	2.3				
Mar. 23	eL_E?	10 21.0	17		1*	NS record lost.
	F	11.0				
Mar. 25	Lq_E?	4 06.0				NS activity weak.
	Lq_N?	4 06.0			2*	
	Lr_E	4 08.1				
	M_{1E}	4 08.3	14	4		
	F	4 19				
Mar. 25	iS_E	13 10 09	6	3		
	iS_N	13 10 12	10		2	
	iSR_{1E}	13-13 13	10	2		
	iSR_{1N}	13 13 13	8		1	
	?Lq_E	13 16.5	35	6		
	?Lq_N	13 16.5	35?		5	
	Lq_E	13 17.5	30	17		
	Lq_N	13 17.5	30		17	
	iLq_E	13 19 57	15	12		
	iLq_N	13 19 57	15		12	
	Lr_E	13 22.3	18	22		
	F	14.2				
Mar. 28	S_E	8 07 07	20	6		NS record lost in overlap.
	L_E	8 12 48		3*		
	L_E	8 13.9				
	M_{1E}	8 14.4	11	5		
	F	8 24				
Mar. 30	L_E	7 38.2				NS record lost.
	M_{1E}	7 47.5	16	3		
	F	?				
Mar. 30	i_E	8 17 58	10	2		NS record lost.
	F	8.7				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. Weather Bureau, Philippine Islands.

GUAM, Marianne Islands. W. W. Rowley, In Charge.

Lat. 13° 28.'3 N. Long. 144° 44.'9 E. h, 5 m.

Instrument	Component	Mass				
Wiechert inverted pendulum.	EW	180 kg.				

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 5	e	5 57 30				NS vibration.
Jan. 5	e	22 17 30				NS vibration.
Jan. 5	e	22 30 45				NS vibration. Felt, intensity III.
Jan. 6	e	2 49 00				NS vibration.
Jan. 6	e	4 10 10				NS vibration. Felt, intensity I.
Jan. 6	e	4 18 00				NS vibration.
Jan. 6	e	4 33 15				NS vibration. Felt, intensity III.
Jan. 6	e	4 48 15				NS vibration.
Jan. 6	e	7 03 00				EW vibration. Felt, intensity I.
Jan. 6	e	7 11 00				NS vibration.
Jan. 6	e	7 19 00				EW vibration.
Jan. 6	e	8 52 20				NS vibration. Felt, intensity II.
Jan. 7	e	00 14 45				NS vibration.
Jan. 7	e	2 47 45				EW vibration.
Jan. 7	e	2 52 30				NS vibration.
Jan. 7	e	2 53 45				EW vibration.
Jan. 7	e	3 19 15				NS vibration.
Jan. 9	e	9 04 00				NS vibration.
Jan. 10	e	17 25 00				NS vibration. Felt, intensity II.
Jan. 13	e	1 14 15				EW vibration.
Jan. 15	e	13 33 45				EW vibration.
Jan. 16	e	3 56 00				EW vibration.
Jan. 19	e	21 00 05				EW vibration.

International Seismological Centre

Table II. Instrumental Reports. Weather Bureau, Philippine Islands.

GUAM, Marianne Islands. W. W. Rowley, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 26	e	1 50 30				EW vibration.
Jan. 28	e	21 35 00				NS vibration.
Jan. 29	e	18 10 20				NS vibration.
Jan. 31	e	14 56 20				EW vibration.
Jan. 31	e	20 19 15				NS vibration.
Feb. 9	e	3 51 00				EW vibration. Felt, intensity II.
Feb. 9	e	4 39 00				NS vibration.
Feb. 9	e	5 48 03				EW vibration.
Feb. 9	e	7 00 00				NS vibration.
Feb. 9	e	18 45 00				EW vibration. Felt, intensity II.
Feb. 11	e	0 12 55				EW vibration.
Feb. 12	e	1 59 20				EW vibration.
Feb. 12	e	9 49 45				EW vibration.
Feb. 12	e	16 56 45				NS vibration.
Feb. 14	e	17 47 30				NS vibration.
Feb. 19	e	8 09 20				EW vibration.
Feb. 21	e	9 47 20				NS vibration.
Feb. 25	e	19 41 45				NS vibration.
Mar. 1	e	5 28 50				EW vibration.
Mar. 4	e	6 34 00				EW vibration.
Mar. 5	e	8 39 00				EW vibration.
Mar. 7	e	7 33 15				NS vibration.
Mar. 12	e	22 09 15				NS vibration.
Mar. 14	e	5 15 00				NS vibration.
Mar. 17	e	5 39 20				EW vibration.
Mar. 17	e	9 15 10				EW vibration.
Mar. 18	e	12 06 00				EW vibration.
Mar. 24	e	12 08 10				EW vibration.

International Seismological Centre

Table II. Instrumental Reports. Weather Bureau, Philippine Islands.

GUAM, Marianne Islands. W. W. Rowley, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Mar. 25	e	17 23 15				NS vibration.
Mar. 30	e	7 56 45				NS vibration.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

HONOLULU (Ewa), Hawaii. H. E. McComb, In Charge.

Lat. 21° 19.'2 N. Long. 158° 03.'8 W. h, 15 m.

International Seismological Centre

Instrument	Compo-nent	Mass	T_o	V		Sensitivity
Milne-Shaw	EW	1 lb.	12.0 s.	150	about	23.5 mm.
do	NS	1 lb.	12.0 s.	150	20:1	28.8 mm.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
Jan. 2	L_N	14 58.6	11		17	On January 1 the EW component operating at the University of Hawaii was oriented to record NS motion. The Ewa station also recorded NS motion. On January 27 the Ewa seismometer was transferred to the University of Hawaii and operation of both components was resumed. The data tabulated from January 1 - 27 were measured from the seismograph operating at Ewa.
	F	15.1				
Jan.24	O_1	1 05 36				Δ_1= 5770 km.
	O_2	1 05 40				Δ_2= 5700 km.
	eP_N	1 14 53	4,15		15*	
	S_N	1 22 13	10		19	
	PS_N	1 22 59	17		50	
	SR_{1N}	1 25.5				
	eLq_N	1 26.7	35?		25*	
	eLr_N	1 28.9	14			
	M_{1N}	1 33.9	20		154	
	F	2.9				
Jan.24	eS_N	6 59.4			10*	
	eL_N	7 04.0	13			
	M_{1N}	7 12.5	15		59	
	F	7.4				
Jan.25	eL_N	8 15.6	10		8	
	F	8.8				
Jan.25	S_N	23 27.5	11			
	L_N	23 34.1				
	M_{1N}	23 35.5	10		17	
	F	24.0				
Jan.26	S_N	15 53 24	11		7	
	e_N	15 58.9	7		7	
	eL_N	15 59.6	13			
	M_{1N}	16 03	20		39	
	F	16.4				

* indicates trace amplitude in one-tenth millimeters.

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

HONOLULU (University), Hawaii. H. E. McComb, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
Feb. 1	Q_1	17 56 28				$\Delta_1 = 6010$ km.
	Q_2	17 56 32				$\Delta_2 = 5960$ km.
	iP_E	18 06 00				
	iP_N	18 06 00	9		12	
	S_E	18 13 34	8	25		
	S_N	18 13 34	8		11	
	L_E?	18 19.5	20	31		
	Lq_N	18 19.0	12,30		20*	
	Lr_E	18 21.6	30			
	M_{1E}	18 24.1	22	116		
	L_N	18 22.0	13			
	M_{1N}	18 24	10		46	
	F	19.4				
Feb. 4	ePR_{1E}?	3 01.0				
	eS_N	3 05.5	8		16	
	eS_E	3 05 30	9	15		
	SR_{1N}	3 08.7			20*	
	L_N	3 09.9	22			
	M_{1N}	3 11.0	11		29	
	L_E	3 09.9	20			
	M_{1E}	3 10.6	15	28		
	F	3.5				
Feb. 16	0_1	1 35 20				$\Delta_1 = 5160$ km.
	0_2	1 35 27				$\Delta_2 = 5050$ km.
	iP_E	1 43 58				
	eP_N	1 43 58				
	eS_E	1 50 29	8			
	iS_E	1 50 43	10	95		
	eS_N	1 50 43			25*	
	iS_N	1 50 52	11		93	
	e_E	1 52.5	10	40		
	e_N	1 53.7	9		30	
	L_N	1 54.2	10,30		35*	
	eL_E	1 55	12,20	70*		
	eL_N	1 55.9	13			
	M_{1N}	1 58.6	10		98	
	iL_E	1 59.6	10			
	M_{1E}	2 01.3	9	120		
	F	5.5				
Feb. 26	Lq_E?	2 24.6	42	85		
	Lr_E?	2 27.6	10	12		
	Lr_N	2 27.7	10		8	
	F	2.6				
Feb. 27	eL_E	4 14.0	9	8		Records disturbed by local quarry blast at 4:12:37. L barely perceptible on NS.
	F	4.4				
Feb. 28	eLr_E	14 52.5	21	36		
	eLr_N	14 52.5	20		29	
	F	15.1				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

HONOLULU (University), Hawaii. J. H. Peters, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
Mar. 3	O_{1E}	1 05 17				Δ_1 = 9610 km.
	O_{2E}	1 05 16				Δ_2 = 9640 km.
	P_E	1 18 00	6	7		
	$S_cP_cS_E$	1 28 18	8			
	S_E	1 28 42		20*		
	PPS_E?	1 30.2	10,20	16*		
	iLr_E	1 44.2	38			
	M_{1E}	1 46.6	24	96		
	F	2.6				
Mar. 3	iS_E	17 05 27	10	11		
	SR,Lq_E	17 09.2	15,20	5*		
	eLr_E	17 10.9	11			
	M_{1E}	17 11.7	10	11		
	F	17.5				
Mar. 7	O_1	9 27 55				Δ_1 = 6520 km.
	O_2	9 27 55				Δ_2 = 6520 km.
	iP_E	9 37 56	8			
	eS_N	9 46.0	16		46	
	S_E	9 46.0	22?	61*		
	S_cS_N	9 47 47	18		69	
	Lq_N	9 52.2	30			
	M_{1N}	9 53.6	28		290	
	Lq_E	9 52.2	40			
	M_{1E}	9 56.2	14,28	120*		
	eL_N	9 55.8	12			
	M_{2N}	9 56.6	12		156	
	F	11.5				
Mar. 9	Lr_E	16 47.8	19			Practically nothing on NS.
	M_{1E}	16 54.0	19	18		Epicenter due east of Honolulu.
	F	17.1				
Mar. 20	iP_E	15 22 08	1	57		Felt throughout Hawaiian
	iP_N	15 22 08	1		113	Islands; probably submarine
	iS,L_E	15 22 23				origin. On NS the motion of
	M_{1E}	15 22.6	1	930		the light spot was too rapid
	iS,L_N	15 22 21	1			to register the maximum ampli-
	M_{1N}	15 22.8	1		430	tude. Recorded on the D and
	C_E	15 25	20			H variometers at Ewa.
	C_N	15 25	20			
	F	15.6				
Mar. 20	eL_E	16 27.5	11	8		
	eL_N	16 29.0	25			
	M_{1N}	16 30.9	19		44	
	eL_E	16 29.9				
	M_{1E}	16 30.7	9	20		
	F	16.7				
Mar. 21	e_E	9 02.7	9	8		
	L_E	9 03.5	10	8		
	eL_N	9 03.7	20		19	
	F	9.2				-

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

HONOLULU (University), Hawaii. J. H. Peters, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
Mar. 21	L_E	10 13.1	10	12		
	L_E	10 15.0	10			
	M_{1E}	10 16.0	9	13		
	L_N	10 15.2	20			
	L_N	10 15 50	9		11	
	M_{1N}	10 18	17		20	
	F	10.4				
Mar. 21	eL_E	16 44.8	9	11		
	eL_N	16 46.6	19		16	
	F	16.9				
Mar. 22	eL_E?	1 13.5	12	9		
	eL_N?	1 14.2	10		8	
	iL_E	1 14 17	10	16		
	eL_N	1 15.3	20		27	
	iL_E	1 16.0	10	29		
	iL_N	1 16 20	10,20		32*	
	F	1.7				
Mar. 22	eL_E	8 01.5				
	M_{1E}	8 04	20	19		
	eL_N	8 01.5	13		8	
	F	8.3				
Mar. 23	eL_E	9 45.0	10	12		
	eL_N	9 45	16		13	
	F	10.0				
Mar. 25	iLq_E	13 09.3	10	10		Epicenter due N.
	iLr_N	13 10.6				
	M_{1N}	13 12.1	8,20		35*	
	L_E	13 10.6	10	25		
	C_N	-- -- --	16			
	F	13.6				
Mar. 28	eL_N	8 11.7	10		3	
	eL_E	8 12.2	10	2		
	L_N	8 13.6	9		7	
	F	8 20				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. Cornell University.

ITHACA, New York. P. G. Sheldon, Observer.

Lat. 42° 27.'0 N. Long. 76° 29.'2 W. h, 243 m.

International Seismological Centre

Instrument	Compo-nent	Mass	T_o	V		
Bosch-Omori	EW	25 kg.	21 s.?	12	4:1	
do	NS	25 kg.	24 s.?	13	4:1	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 1	eL	8 34				
	L	8 34 33	13			
	F	8 48				
Jan. 1	eL	9 30.8				
	L	9 31.2	12			
	F	9 41				
Jan. 24	e	1 36				
	e	1 43 06				
	L	2 06 03	18			
	L	2 10 40	19			
	F	3 33				
Jan. 24	eL	7 49	18			
	F	8 02				
Jan. 26	eL	0 08				
	L	0 18	20			
	L	0 39	14			
	F	0 42				
Feb. 1	L	18 55	30			
	F	19 37				
Feb. 3	L	4 48	22			
	F	4 59				
Feb. 16	S	1 57 50				Time estimated. Error uncertain.
	eL	2 13				
	L	2 25	18			
	F	4 16				
Feb. 28	S	14 28 20				
	eL	14 40				
	F	14 48				
Mar. 7	e	9 45 22				
	e	9 52 05				
	e	9 59 31				
	eL	10 12				
	L	10 21	25			
	M	10 27	18			
	F	11 52				

* indicates trace amplitude in one-tenth millimeters.

Table II. Instrumental Reports. Cornell University. 39

ITHACA, New York. P. G. Sheldon, Observer.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Mar. 9	i	16 25 52				
	L	16 30	26			
	F	16 48				
Mar. 21	L	16 21	20			
	F	16 43				
Mar. 22	e	1 28				
	F	2 08				
Mar. 25	e	13 20				
	F	13 44				
Mar. 30	e	8 20				
	F	8 27				

* indicates trace amplitude in one-tenth millimeters.

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Table II. Instrumental Reports. Theosophical University.

POINT LOMA, California. Fred J. Dick Observer.

Lat. 32° 43.0 N. Long. 117° 15.2 W. h, 91 m.

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Two-horizontal-component astatic arrangement, on lines of a suggestion by C. D. West. Also an arrangement for recording vertical movements. V 1

Date	Phase	Time	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 1		8 30 00 to 9 15 00 or 9 20 00		350*	150*	San Diego and Point Loma - Several light shocks on Jan.1 between the times given. Intensity about III, Rossi-Forel scale. Noticed by a number of people.
4		16 00		150*	100*	--Microseisms during the preceding 24h.
10		do		200*	150*	
19		do		150*	150*	
22		do		200*	100*	
29		do		150*	100*	
30		do		200*	150*	
Feb. 7		16 00		200*	100*	Microseisms during the preceding 24h.
10		do		200*	100*	
13		do		100*	50*	
14		do		250*	250*	
						No microseisms of amplitude ≧ 100μ (i.e., 1/10 mm.) recorded during March.

* indicates trace amplitude in microns.

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

SAN JUAN, Porto Rico. W. M. Hill, In Charge.

Lat. 18° 23.'4 N. Long. 66° 07.'3 W. h, 80 m.

Instrument	Compo-nent	Mass	T_o	V		
Bosch-Omori	EW	10 kg.	8 s	10	Undamped	
do	NS	do	8 s	10	do	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Feb. 5	e_E	0 15.4				NS weak.
	L_N	0 16.0				
	L_E	0 16 39				
	M_{1E}	0 17.2	8	1*		
	F	0 22				
Feb. 5	e_N	4 36.4			1*	NS weak.
	e_E	4 36.3				
	M_{1E}	4 38.2	8	1*		
	F	4 43				
Mar. 6	?P_E	1 38 07		1*		Practically nothing on NS.
	L_E	1 44.7		9*		
	F	1.7				
Mar. 7	eL_N	10 33.2	28			Only a trace of L waves on EW.
	M_{1N}	10 37.2	25		2*	
	F	11.0				
Mar. 24	P_E	17 36.0				Nothing on NS. Slight tremors felt in San Juan. Seismographic record shows practically nothing.
	F	17 38				

* indicates trace amplitude in one-tenth millimeters.

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Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

SITKA, Alaska. F. P. Ulrich, In Charge.

Lat. 57° 03.'0 N. Long. 135° 20.'1 W. h, 15 m.

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Instrument	Component	Mass	T_o	V		
Bosch-Omori	EW	10 kg.	18.9 s.	10	Undamped	
do	NS	10 kg.	16.9 s.	10	do	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Jan. 24	PS_E	1 31.0				
	eL_N	1 46.5				
	M_{1N}	1 55.3				
	eL_E	1 49.0	20	2*		
	F	2.5				
Feb. 16	eP_N	1 43 43				
	P_E	1 43 33	4	1*		
	e_E	1 45 13	5	1*		
	eS_N	1 50 07	10		9*	
	iS_E	1 50 04	11	6*		
	L_N	1 54.5	12			
	M_{1N}	2 07	16		5*	
	L_E	1 53 29	8	3*		
	F	2.6				
Mar. 7	eS_N	9 46.2				
	ePS_E?	9 46.5				
	e_N	9 49.5				
	e_E	9 49.0				
	S, L_N	9 52.2				
	eL_E	9 58.8	18			
	M_{1E}	10 10.3	13	6*		
	eL_N	10 02.4	15			
	eL_N	10 07.5				
	M_{1N}	10 11.0	14		4*	
	F	10.5				
Mar. 25	P_E?	12 58 09				P_E? may. be microseismic; e_N probably non-seismic.
	e_E	19 59 02				
	?e_N?	12 59.8				
	e_E	13 00 08				
	eL_N	13 01.8				
	M_{1N}	13 04.2	12		2*	
	L_E	13 01.7	13?	1*		
	M_{1E}	13 04 16	8?	2*		
	F	13.2				

* indicates trace amplitude in one-tenth millimeters.

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Lat. 32° 14.'8 N. Long. 110° 50.'1 W. h, 770 m.

Instrument	Compo-nent	Mass	T_o	V_o		
Wood-Anderson	EW	2.3 gms.	5.3 s	435	30:1	
do	NS	2.3 gms.	5.3 s	435	30:1	

NOTE

The ground movements at Tucson for earthquakes recorded during the first quarter of 1927 have not been computed and tabulated in this report as has been done previously. It will be noted in the majority of cases that the trace amplitude expressed in one-tenth millimeters represents a much smaller ground movement than one micron. The relative magnitudes of the small preliminary displacements for the numerous nearby shocks tabulated in this report are thus more accurately represented by trace amplitudes expressed in one-tenth millimeters. For the benefit of those who may wish to know what displacements occurred the following table will facilitate the computation. For each component there is a column indicating the number of microns by which the amplitude in millimeters should be multiplied for any given ground period (T_e) as tabulated in the period column of the report.

Period or T_e	N-S	E-W	Period or T_e	N-S	E-W
1	2.3	2.1	26	55.8	51.4
2	2.4	2.2	27	59.6	54.9
3	2.7	2.5	28	64.3	59.2
4	3.1	2.8	29	69.0	63.5
5	3.6	3.4	30	73.5	67.7
6	4.4	4.0	31	78.7	72.5
7	5.4	4.9	32	83.9	77.2
8	7.0	6.4	33	89.1	82.1
9	7.8	7.2	34	94.3	86.8
10	9.4	8.6	35	99.9	92.0
11	11.0	10.1	36	105.7	97.3
12	12.8	11.8	37	111.9	103.1
13	14.8	13.6	38	117.5	108.2
14	17.0	15.6	39	124.0	114.2
15	19.0	17.5	40	130.4	120.1
16	21.7	20.0	41	135.9	125.1
17	24.3	22.4	42	142.3	131.0
18	27.3	25.2	43	149.3	137.4
19	30.2	27.8	44	156.1	143.9
20	33.4	30.7	45	163.3	150.5
21	36.7	33.8	46	170.9	157.4
22	39.7	36.6	47	174.0	160.2
23	43.8	40.3	48	186.3	171.4
24	47.6	43.9	49	193.2	177.7
25	51.6	47.5	50	201.8	185.8

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Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 1	P_E	8 17 55	0.5	1*		
	P_E	8 18 00	1.0	1*		Destructive in Calexico.
	e_N	8 18 03				Local.
	e_N	8 18 11			1*	
	iP_E	8 13 13	0.8	19*		
	iP_N	8 18 13	.8		7*	
	i_E	8 18 15	0.8	22*		
	i_E	8 18 18	3?	22*		
	e_N	8 18 18	2?		10*	
	i_E	8 18 21	0.8	72*		
	i_N	8 18 21	.8		13*	
	i_E	8 18 25	0.8	82*		
	i_N	8 18 25	.8		25*	
	$?e_N$	8 18 31			30*	
	$eS_E?$	8 18 55	3?	3*		
	$?S_N?$	8 18 55			25*	
	i_E	8 18 58	.8	70*		
	e_N	8 18 58	1.5		26*	
	S_E	8 19 06	2			
	M_{1E}	8 19.4	2	215*		
	S_N	8 19 05	2?		105*	
	L_N	8 19 22	2?			
	M_{1N}	8 19.4	2?		175*	
	M_E	8 19.7	4?	160*		
	M_N	8 19.7	10?			
	M_E	8 20.2	3.5	135*		
	F_E	8 38	4			
Jan. 1	P_E	9 04 03				
	$?e_N$	9 04 33				Local aftershock.
	P_E	9 04 26	0.8	1*		
	e_E	9 04 33	1.2	1*		
	e_N	9 04 42	1.5		1*	
	e_E	9 04 54	1.2	1*		
	S_E	9 05 17	1.8	3*		
	$?e_E$	9 05 22		3*		
	L_N	9 05 22	1,2		3*	
	L_E	9 05 46	1.8	3*		
	M_E	9 06 12	1.2	2*		
	M_E	9 07.3	.5,1.5	2*		
	F_E	9 09				
Jan. 1	eP_E	9 14 42	.7	1*		
	e_E	9 14 52	.7,2.5	1*		Destructive in Calexico.
	e_N	9 14 53				Local.
	P_E	9 14 59	4	18*		
	P_N	9 14 59	1		2*	
	$?e_E$	9 15 06	.7	13*		
	$?e_N$	9 15 06	1.2		2*	
	i_E	9 15 10	4?	45*		
	i_N	9 15 10	.9		10*	
	e_N	9 15 12	3		18*	
	$?e_N$	9 15 19	3		30*	
	$?e_E$	9 15 30	1.5?	20*		
	i_N	9 15 30	1		30*	
	$S_E?$	9 15 39	2	50*		
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 1		(continued)				
	e_N?	9 15 48	2		60*	
	$\overline{S}_E$	9 15 52	2			
	M_{1E}	9 15 56	2	162*		
	?$\overline{S}_N$	9 15 52				
	L_E	9 15 58	2			
	M_{2E}	9 16 10	2	22*		
	L_N	9 15 58	1.5?		190*	
	L_E	9 16 18	2			
	M_{3E}	9 16 30	2	17*		
	L_N	9 16 18	1.5?		175*	
	M_{1N}	9 16.7	1.5?		200*	
	?e_N	9 16 49	1.5?		110*	
	M_N	9 16 58	4		75*	
	F_N	9 33				
Jan. 1	P_E	9 32 56				
	e_E	9 33 02	.7	1*		Local. Felt near Calexico, Calif.
	$\overline{P}_E$	9 33 10	1,2	4*		
	$\overline{P}_N$	9 33 10	.8		1*	
	e_N	9 33 13	2		2*	
	?e_N	9 33 23	3?		2*	
	?e_E	9 33 29	2	5*		
	S_E	9 33 54	2	9*		
	S_N	9 33 54	3		5*	
	i_E	9 33 58	2	21*		
	?i_N	9 33 58	2		7*	
	?e$\overline{S}_E$	9 34 07	1.7	42*		
	M_{1E}	9 34 35	2.1	45*		
	i$\overline{S}_N$	9 34 04	2		25*	
	?L_N	9 34 20	2		40*	
	M_E	9 35 04	1.8	22*		
	M_N	9 35 16	5		12*	
	M_E	9 35 33	2,4	16*		
	M_E	9 36 04	2.0	14*		
	M_E	9 36 23	4.0	10*		
Jan. 1	e_E	9 37 58	1?			
	$\overline{P}_N$	9 38 19				Preliminary tremors superimposed on end portion of preceding quake.
	e_N	9 38 31	1		2*	
	i_N	9 38 47	1		3*	
	iS_E?	9 38 55	1	12*		Local aftershock.
	S_N	9 38 55	2		6*	
	i$\overline{S}_E$	9 39 03	2	20*		
	e$\overline{S}_N$	9 39 03	1,2		16*	
	L_N	9 39 19	2,4		14*	
	M_N	9 39 36	4		10*	
	F_N	9 44				
Jan. 1	P_E	10 04 14	.9	1*		Local.
	e_E	10 04 19	.9	1*		
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 1		(continued)				
	$i\overline{P}_E$	10 04 28	.9	2*		
	$e\overline{P}_N$	10 04 28	1		1*	
	e_E	10 04 34	.8	5*		
	e_N	10 04 34	1.5		4*	
	e_E	10 04 37	.8,2.5	8*		
	e_N	10 04 46			10*	
	e_E	10 04 57	1	8*		
	S_E	10 05 10	1.5	15*		
	$?S_N$	10 05 10	2		6*	
	$?\overline{S}_E$	10 05 17	1.5	25*		
	$\overline{S}_N$	10 05 17	1.0		10*	
	$?L_E$	10 05 23	1.2	25*		
	L_N	10 05 23	1?		20*	
	i_E*	10 05 28	1.5	40*		
	i_N*	10 05 28	.8		25*	* (In phase column) means one wave.
	M_{1N}	10 05.7	1?		30*	
	L_E	10 05 31	2.0	50*		
	$?C_E?$	10 05 51	2.3	25*		
	$?L_N$	10 05 51	.8		24*	
	$?M_E$	10 06 07	2,3	25*		
	M_N	10 06 07	5		20*	
	M_N	10 07 03	3.5		15*	
	M_N	10 08 20	4		10*	
	F_E	10 12				
Jan. 1	$?eP_E$	10 11 23				
	e_E	10 11 30				Local aftershock.
	i_E	10 11 33	.8	1*		
	$i\overline{P}_E$	10 11 39	1.2	3*		
	$\overline{P}_N$	10 11 39	.8		1?	
	e_E	10 11 49	2.5	3*		
	e_E	10 12 10	1.2	4*		
	e_E	10 12 21	2	3*		
	$iS_E?$	10 12 24	1	6*		
	$iS_N?$	10 12 24	1.5		10*	
	$i\overline{S}_E$	10 12 31	1?	20*		
	$?i\overline{S}_N$	10 12 31	1.5		14*	
	iL_E	10 12 37	1.8	15*		
	$?L_N$	10 12 42	1,2			
	M_E	10 13.0	2.4	8*		
	$?M_N$	10 12 56	3?		5*	
	M_E	10 13.6	3.5	4*		
	M_N	10 13 37	3?		3*	
	F_N	10 17				
Jan. 1	eP_E	10 18 17	.8	1*		
	i_E	10 18 24	.7	1*		Local aftershock.
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 1		(continued)				
	$\underset{\sim}{iP_E}$	10 18 30	.8	2*		
	$\underset{\sim}{P_N}$	10 18 30				
	$?e_E$	10 18 44	1.2	2*		
	e_N	10 18 44	1.2		1*	
	i_E	10 18 49	.8,1.5	3*		
	$?e_N$	10 18 53	1.2		1*	
	$iS_E?$	10 19 07	1.8	3*		
	e_E	10 19 16	1.5	4*		
	i_N	10 19 16	2		2*	
	$\underset{\sim}{iS_E}$	10 19 23	2.5	9*		
	$?S_N$	10 19 23	.8		1*?	
	eL_E	10 19 30	1.5	8*		
	L_N	10 19 30	1.5		5*	
	M_E	10 19 49	2	4*		
	eM_N	10 19.8	4		2*	
	F_N	10 22				
Jan. 1	eP_E	10 32 38	.8	1*		
	e_N	10 32 45	.5?		1*	Local.
	$\underset{\sim}{iP_E}$	10 32 50	8	3*		
	$\underset{\sim}{P_N}$	10 32 50	.5		1*	
	i_E	10 32 53	.7	5*		
	$?e_E$	10 32 55	.8	7*		
	i_N	10 32 55	.5		6*	
	e_N	10 32 58	2		6*	
	e_E	10 33 04	2	7*		
	$?e_N$	10 33 04	2.5		6*	
	e_N	10 33 13	2		10*	
	e_E	10 33 18	1.0	9*		
	i_E	10 33 30	1.5	10*		
	$?eS_E?$	10 33 31	2	6*		
	$\underset{\sim}{S_E}$	10 33 42	1.5	35*		
	iS_N	10 33 42	1.5		15*	
	L_E	10 33 48	1.5	40*		
	M_{1E}	10 33 56	1.5	55*		
	iL_N	10 33 48	2		25*	
	iL_N	10 33 52	2		28*	
	M_{1N}	10 34 02	1.5		35*	
	i_N	10 34 09	1		35*	
	i_N	10 34 26	1		40*	
	$?L_N$	10 34 30	2		25*	
	M_E	10 34.7	1,2	25*		
	M_E	10 35 08	1,3	10*		
	M_N	10 35 08	4		20*	
	F_E	10 44				
Jan. 1	e_E	11 21 17				Local aftershock.
	i_E	11 21 28	1	1*		
	e_E	11 21 31	2	2*		
	e_N	11 21 28	1		1*	
	F_N	11 22.1				
	F_E	11 22.7				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 1	ePE	11 33 26				
	$\overline{P}_E$?	11 33 32		1*		Local aftershock.
	e_E	11 34 06	1	1*		
	eS_E?	11 34 13	1	1*		
	S_N?	11 34 16	.8		1*	
	$i\overline{E}$	11 34 21	1	3*		
	?$i\overline{S}_E$	11 34 25	1	2*		
	$\overline{S}_N$	11 34 26	1.5		2*	
	iL_E	11 34 29	1.7	3*		
	F_E	11 36.3				
Jan. 1	$e\overline{P}_E$	12 09 07	.7	1*		
	e_E	12 09 53	.8	1*		Local aftershock.
	e_N	12 09 56	1.5		1*	
	$\overline{S}_E$	12 09 58	2	2*		
	?L_N	12 10 05	2		2*	
	?eL_E	12 10 18	1,2	1*		
	F_E	12 11.2				
Jan. 1	P_E	12 49 11	.8	1*		No clearly defined phases.
	?e_N	12 49 28				Local aftershock.
	e_E	12 49 44	1	1*		
	e_N	12 50 06				
	$i\overline{S}_E$	12 50 13	8,1.5	3*		
	$\overline{S}_N$	12 50 13	1.5		1*	
	?L_N	12 50 19	1.5		2*	L_N 12 50 25
	M_N	12 50				
	F_N	12 52				
Jan. 1	e_E	12 54 43		1*		
	?	12 54 56				Local aftershock.
	e_E	12 55 08		1*		
	$\overline{S}_E$	12 55 21	2	1*		
	$\overline{S}_N$	12 55 21	.8		1*	
	L_E	12 55 27	1	1*		
	L_N	12 55 27	1.5		1*	
	M_E	12 55 36	2	2*		
	M_N	12 55 36	2		2*	
	F_N	12 56.3				
Jan. 1	$e\overline{P}_E$	12 56 52	.8	1*		
	S_E?	12 57 34	1	1*		Local aftershock.
	?S_N?	12 57 34				
	$\overline{S}_E$	12 57 43	1.5	2*		
	$\overline{S}_N$	12 57 43	1		1*	
	?L_E	12 58 02				
	M_N	12 58 54	1		1*	
	F_N	12 59.0				
Jan. 1	e_E	12 59 35	0.8	1*		Local.
	$\overline{P}_E$	12 59 42	3	5*		
	$\overline{P}_N$	12 59 42	.5		1*	
	e_N	12 59 51	3		5*	
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

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TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 1		(continued)				
	e_E	12 59 58	2.5	13*		
	e_N	12 59 58	2.5		10*	
	$?e_N$	13 00 05	2		10*	
	i_E	13 00 10	1,2	13*		
	e_E	13 00 14	1.2	10*		
	$?e_N$	13 00 14	1,3		10*	
	$S_E?$	13 00 22	1	17*		
	$S_N?$	13 00 22	2		8*	
	$\underline{S_E}$	13 00 34	1.5	25*		
	S_N	13 00 34	2			
	L_E	13 00 39				
	M_{1N}	13 00.8	2		100*	
	iL_N	13 00 53	2		120*	
	M_N	13 01 17	4		65*	
	M_N	13 01.5	4.5		30*	
	M_N	13 02 00	2,4		40*	
	F	13 15				
Jan. 1	$\overline{P_E}$	13 27 19	.5	1*		
	$P_E?$	13 27 22	1	1*		Local aftershock.
	e_E	13 27 29	.5	1*		
	e_E	13 27 54	.8	1*		
	e_E	13 28 06	1	1*		
	$\overline{S_E}$	13 28 13	2	2*		
	S_N	13 28 15	1.2		1*	
	L_E	13 28 23	1.7		2*	
	$?L_E$	13 28 31	1.5	2*		
	$?L_N$	13 28 29	1.5		1*	
	F	13 30				
Jan. 2	$e\overline{P_E}?$	1 58 33				
	$i\overline{P_E}$	1 58 39	.5	1*		Local aftershock.
	$?e_E$	1 58 45	.5	1*		
	e_N	1 58 51			1*	
	e_E	1 59 03	1	1*		
	e_N	1 59.3	1.5		1*	
	e_E	1 59 13	1.5	2*		
	$\overline{S_E}$	1 59 28	2	3*		
	L_E	1 59 37	1.5	6*		
	L_N	1 59 40	1,3		4*	
	L_E	1 59 44	1.5	4*		
	i_E	1 59 48	1	6*		
	$?e_N$	1 59 48			4*	
	$?M_E$	1 59 57	1.5	4*		
	$?L_N$	1 59 54			4*	
	$?iM_N$	2 00 13	1.3		2*	
	$?M_E$	2 00.7	3?	2*		
	F	2 03				
Jan. 2	e_E	3 56 42	1.5	1*		Nothing definite.
	e_N	3 56 42				Local aftershock.
	F	3 57.5				

* indicates trace amplitude in one-tenth millimeters.

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TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 2	$\overline{P}_E$?	8 48 31				
	e_E	8 49 04				Local aftershock.
	e_E	8 49 14				
	e_N	8 49 17	1		1*	
	$\underline{S}_E$?	8 49 20	1	1*		
	$\underline{S}_N$?	8 49 23	1.2		1*	
	?e_E	8 49 32	8	1*		
	e_N	8 49 30	1.5		1*	
	L_E	8 49 41	.5,2	2*		
	?L_N	8 49 49	?		2*	
	?L_E	8 50 25	1.5	1*		
	L_N	8 50 04	1.2		1*	
	F	8 50.6				
Jan. 2	e_N	12 23 00			1*	Lamp out on EW.
	e_N	12 23 05	1.5		2*	Local aftershock.
	?e_N	12 23 26	1.5		2*	
	?e_N	12 23 47	4		1*	
	F	12 25				
Jan. 2		13 15				Sheets being changed; small shock being recorded as EW started. Local aftershock.
Jan. 2	?e_E	14 06 35				
	S_E?	14 07 01	.5	1*		Local aftershock.
	S_N?	14 07 04			1*	
	S_E?	14 07 07	.5	1*		
	$\overline{S}_E$	14 07 19	2?	2*		
	?$\overline{S}_N$?	14 07 19	1		2*	
	L_E	14 07 38	1	2*		
	?M_E	14 08 10	1	1*		
	F	14 08.5				
Jan. 3	P_E	23 55 51	1.5	1*		
and 4.	P_N	23 55 51	1.5		1*	
	e_N	23 55 55	1.5		1*	
	e_E	23 56 40	1.5	1*		
	e_N	23 56 55	2		1*	
	S_E	23 57 35	2	1*		
	e_E	23 57 48	3	2*		
	e_N	23 57 48	1.5		1*	
	e_N	23 57 53	2.2		2*	
	L_E?	23 58 01	15			
	M_{1E}	23 58 33	10	15*		
	1M_N	23 58 55				
	M_{1N}	23 58 57	3,10		25*	
	?e_E	23 59.2	8	13*		
	M_N	23 59.2	10		8*	
	e_E	0 00' 00	3	6*		
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

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Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 3 and 4.		(continued)				
	?e_E	0 00.3	5	6*		
	M_N	0 00 14	6		15*	
	i_E	0 00 40	6.5	11*		
	?M_N	0 01 17	6?		10*?	
	?e_E	0 00 55	7	10*		
	F	0 20				
Jan. 5	eP_E?	23 03 57	1.5	1*		
	$\overline{P}_E$?	23 04 11	1.0	1*		Local aftershock.
	$\overline{P}_N$?	23 04 11	4		1*	
	e_E	23 04 23	2.0	1*		
	S_E?	23 04 55	1.0	1*		
	S_E?	23 04 58	2.0	1*		
	$\overline{S}_E$?	23 05 21	2	1*		
	e_N	23 05 27	2		2*	
	iL_E	23 05 35	2	3*		
	L_N	23 05 35	2.2		4*	
	?e_E	23 05 41	1.1	6*		
	?e_N	23 05 41	1		?	
	?e_E	23 05 48	3	5*		
	?e_N	23 05 48	3		6*	
	?e_E	23 05 58	2?	10*		
	?e_N	23 05 58	2		10*	
	?M_E	23 06.2	8?	4*		
	i_N	23 06 23	1.5		10*	
	M_N	23 06 30	1.5		6*	
	M_N	23 07.1	6		4*	
	M_E	23 07.5	3	3*		
	F	23 14				
Jan. 5	e_E	23 16 06	1.5	1*		Local aftershock.
	e_N	23 16 11	1.5		1*	
	F	23 18.5				
Jan. 5.	P_E?	23 39 40	1.3	1*		
	e_E	23 40 12				Local aftershock.
	e_E	23 40 22				
	e_E	23 40 50	1.3	1*		
	$\overline{S}_E$?	23 40 57	1	1*		
	$\overline{S}_N$?	23 40 57	1.1		1*	
	e_E	23 41 07	.6	1*		
	L_N?	23 41 12	1.6?		2*	
	iL_E	23 41 10	1.5	3*		
	M_E	23 41 30	3.5	1*		
	i_E	23 41 46	.8	3*		
	?M_N	23 42 09	2?		2*	
	F	23 47				
Jan. 6	?P_E	16 38 39				
	$\overline{P}_E$	16 38 58	.6	1*		Local aftershock.
	$\overline{P}_N$	16 38 55	.8		1*	
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

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TUCSON, Arizona. A. K. Ludy, In Charge.

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Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 6		(continued)				
	e_E	16 39 01	.6	1*		
	e_E	16 39 07	1	1*		
	e_N	16 39 17	.8		1*	
	S_E?	16 39 31	1,1.5	1*		
	e_E	16 39 40	1.5	2*		
	?$\overline{S}_E$	16 39 48	1.5	2*		
	$\overline{S}_N$	16 39 48	.1		1*	
	L_E	16 39 58	2	3*		
	L_N	16 39 58	8,2		2*	
	M_E	16 40 20	4	1*		
	M_E	16 40 28	1.5	2*		
	M_N	16 40 35	4		2*	
	F	16 44				
Jan. 7	P_E	9 17 11	1	1*		Light out on NS component.
	$\overline{P}_E$	9 17 28	1	1*		F lost in following tremor.
	S_E?	9 18 39	1.5	2*		Local.
	$\overline{S}_E$	9 18 54	2	3*		
	iL_E	9 19 09	2	10*		
	M_{1E}	9 19 12	1.5	35*		
	fM_E	9 19 14	1.5			
	M_E	9 20 17	7	15*		
Jan. 7	e_E	9 29 10	1.5	3*		Local.
	F	9 34				
Jan.13	e_N	10 49 14	.8		1*	E-W component lost.
	e_N	10 49 33	.8,2		2*	Local aftershock.
	i$\overline{S}_N$	10 50 15	1		3*	
	iM_N	10 50 26	1.5		5*	
	?	10 51.8	2		2*	
	F	10 54				
Jan.13	e_N	11 28 32	.8		1*	Light out on EW.
	F	11 29.2				Local aftershock.
Jan.14	P_E	2 35 21	1	1*		
	P_N	2 35 21	1.5		1*	Local.
	e_E	2 35 45	1.5	2*		
	e_N	2 35 45	.5		1*	
	e_N	2 35 54	1.5		1*	
	e_E	2 35 57	.8	1*		
	?e_N	2 36 05	1.5		2*	
	e_E	2 36 17	1.0	1*		
	e_N	2 36 17	1.5		2*	
	e_E	2 36 21	1.5	2*		
	e_N	2 36 33	.5		1*	
	e_N	2 36 39	1,2		2*	
	eS_E	2 36 56	?	2*		
	S_N	2 36 56	1.5		4*	
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

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TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 14		(continued)				
	?e_E	2 37 04	1.1	3*?		
	?e_N	2 37 04	.5		1*	
	L_N	2 37 08	3			
	M_{1N}	2 37 15	3		11*	
	iL_E	2 37 13	1.5	10*		
	?L_E	2 37.7	1.2,3			
	M_{1E}	2 37 47	1.8	15*		
	?L_E	2 37 51	3	12*		
	L_N	2 37.9	3		11*	
	i_E	2 38 21	2	9*		
	M_E	2 38 31	2,5	3*		
	M_E	2 39 00	4	6*		
	M_N	2 39.1	7		5*	
	i_N	2 41.4	5		5*	
	F	2.8				
Jan. 16	e_E	17 06 07		1*		
	?e_N	17 06 28				Local aftershock.
	e_N	17 06 34				
	e_E	17 06 44		1*		
	e_N	17 06 47				
	e_E	17 06 56		1*		
	L_N?	17 06 56	.8		1*	
	L_E?	17 07 00	1	2*		
	L_E?	17 07 06	1.3	1*		
	L_N?	17 07 06	.8		1*	
	F	17 07.8				
Jan. 16	?P_N	19 07 00			1*	Calexico.
	e_N	19 07 07			1*	
	P_E	19 07 10	.4	1*		
	P_N	19 07 10	.8		1*	
	e_E	19 07 13	.8	2*		
	e_N	19 07 13	.8		1*	
	e_E	19 07 22	1	4*		
	e_N	19 07 22	2.2		2*	
	e_E	19 07 26	2.5	3*		
	e_N	19 07 30	1.8		3*	
	e_E	19 07 37	1.5	4*		
	?e_N	19 07 37	2.2		3*	
	e_E	19 07 40	1.2	5*		
	S_E?	19 07 48	2?	6*?		
	eS_N?	19 07 51	2.5		3*	
	iS_E	19 07 59	2?	8*?		
	?S_N	19 08 01	3		5*	
	iL_E?	19 08 09	2	18*		
	iL_N	19 08 12	2		15*	
	iL_E	19 08 16	1.6	20*		
	fL_N	19 08 16	2		6*	
	iL_E	19 08 32	2			
	M_{1E}	19 08 43	2	26*		
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

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Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 16		(continued)				
	fL_E	19 08 45				
	iM_E	19 08 48	2	20*		
	iM_E	19 09 24	2.5	15*		
	M_N	19 09 23	3.1		16*	
	F	19.3				
Jan. 18	$\underline{P}_N$?	13 15 43	.5		1*	Calexico. Aftershock.
	$\overline{P}_N$?	13 15 49	.5		1*	Overlap on EW.
	e_N	13 16 37	.8		1*	
	$\underline{S}_N$?	13 16 51	.5		1*	
	$\overline{S}_N$?	13 16.9	3		2*	
	?L_N?	13 17.1	1,2.5		2*	
	L_N	13 17 25	3		3*	
	M_N	13 17 38	2		3*	
	M_N	13 17 57	3.5		2*	
	F	13 21				
Jan. 18	$\underline{P}_N$?	23 52 02	.5		1*	Overlap on EW.
	$\overline{P}_N$?	23 52 08	.5		1*	Local
	e_N	23 52 14	.5		1*	
	e_N	23 52 17	1		2*	
	e_N	23 52 27	2		4*	
	iS_N?	23 52 47	.8		5*	
	e_N	23 52 55)				
	$\underline{S}_N$	23 52 59)	.8,3		10*	
	L_N	23 53 09	2		11*	
	L_N	23 53 17	1?		20*	
	?e_N	23 53 26?				
	M_{1N}	23 53 40	2?		25*?	
	?M_N	23 53.9	3?			
	M_N	23 54.8	3		15*	
	F	lost				
Jan. 18 and 19	$\underline{P}_N$	23 57 55	.5		1*	Overlap on EW.
	$\overline{P}_N$	23 58 05	1		5*	Local
	?e_N	23 58 27	1.5?		6*	
	$\underline{S}_N$?	23 58 32	1,2		4*	
	iS_N?	23 58 42	.6		6*	
	e_N	23 58 47	.5		5*	
	e_N	23 58 49	.5		12*	
	$\overline{S}_N$	23 59 51	1.5		18*	
	?e_N	23 59 55	1		16*	
	L_N	23 59 59				
	M_{1N}	0 00 01	1.5?		28*?	
	i_N	0 00 11	1		45*	
	?M_N	0 00 15	1.5		20*	
	eM_N	0 00.3	4		10*	
	F	0 06				
Jan. 19	$\overline{P}_N$?	0 28 56	.8		1*	Overlap on EW.
	e_N	0 29 03	1		2*	Local aftershock.
	e_N	0 29 09	2		1*	
	e_N	0 29 22	.5		1*	
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

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Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 19		(continued)				
	e_N	0 29 25	.6		1*	
	e_N	0 29 41	1		1*	
	$i\overline{S}_N$?	0 29 47	2		3*	
	?L_N	0 29 55	2		2*	
	M_N	0 31 14	4		3*	
	F	0 33				
Jan. 19	P_N?	1 12 39	.5		1*	Overlap on EW.
	$\overline{P}_N$?	1 12 47	.5		1*	Local.
	i_N	1 12 52	.5		2*	
	i_N	1 12 57	1.0		3*	
	?e_N	1 13 02	1		2*	
	S_N?	1 13 20	1		2*	
	e_N	1 13 31	1		2*	
	$\overline{S}_N$?	1 13 35	1		4*	
	L_N	1 13 42	1.5		11*	
	L_N	1 13 59	1.0		6*	
	M_N	1 14 06	1.8		9*	
	M_N	1 15 23	4		6*	
	F	1 19				
Jan. 19	P_N	1 19 53	.5		1*	Overlap on EW.
	e_N	1 19 57	.5		1*	Local.
	e_N	1 20 02	.5		1*	
	$\overline{P}_N$	1 20 04	.7		1*	
	e_N	1 20 10	1,2		5*	
	i_N	1 20 32	1		5*	
	e_N	1 20 34	1,2		5*	
	?S_N?	1 20 44	2.5		7*	
	i_N	1 20 53	.5		10*?	
	$\overline{S}_N$?	1 20 55	2.5,4		28*	
	i_N	1 21 03	1?		65*	
	L_N	1 21 11	1,4			
	M_{1N}	1 21 16	1.7		40*	
	M_N	1 22 20	3		25*	
	M_N	1 22.7	4		22*	
	L_N?	1 25.0	2.5		25*	
	F	1.6				
Jan. 19	P_N	1 37 08	.7		1*	Overlap on EW.
	e_N	1 37 37	1		2*	Local aftershock.
	e_N	1 37 43	1.5		4*	
	i_N	1 38 19	1.2		4*	
	$i\overline{S}_N$?	1 38 27	1.8		7*	
	$L,\overline{S}_N$?	1 38 46	1		10*	
	L_N	1 38 53	1.8		11*	
	M_N	1 39 50	3.5		12*	
	M_N	1 40 07	4		10*	
	F	1 45				
Jan. 19	P_E?	2 21 12	.5	1*		Local aftershock.
	$\overline{P}_E$?	2 21 19		1*		
	P_N?	2 21 18	.5		1*	
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

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Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 19		(continued)				
	e_E	2 21 25	1.5	1*		
	e_N	2 21 22	1		1*	
	e_E	2 21 44	.8	1*		
	$\underline{S}_E$?	2 22 07	2	5*		
	$\underline{S}_N$?	2 22 07	1,2		2*	
	L_N	2 22 15	2		2*	
	L_E	2 22 26	1.3	5*		
	?M_E	2 25.0				
	M_N	2 23 05	1.5		2*	
	F	2 25.0				
Jan. 19	P_N?	2 25 21	.5		1*	
	e_N	2 25 24	.5		1*	Local.
	e_E	2 25 27	.5	1*		
	$\underline{P}_E$?	2 25 32	1	1*		
	$\underline{P}_N$?	2 25 32	.5		2*	
	e_E	2 25 38	1.3	2*		
	e_N	2 25 38	1		5*	
	e_E	2 25 41	1.5	5*		
	e_E	2 25 57	1.5	5*		
	e_N	2 26.0	2		4*	
	S_E?	2 26 11	1.2	3*		
	S_N?	2 26 12	3		6*	
	$\underline{S}_E$?	2 26 18	5,2	20*		
	$\underline{S}_N$?	2 26 22	.8, 2		11*	
	?L_E	2 26 30	2	30*		
	iL_N	2 26 32	.5, 3		25*	
	L_E	2 26 37	2.5	51*		
	?L_E	2 26 52	2,6	40*		
	?L_N	2 26 52	2,3			
	M_{1N}	2 26 54	3		35*	
	M_N	2 27 50	3.5		32*	
	F	2 38				
*						* Quakes at 2:53, 3:11, 3:54, and 4:16 are out of order and appear on the two pages following.
Jan. 19	$\underline{P}_N$?	4 46 06	.5		1*	
	e_N	4 46 08	1.4		1*	
	e_E	4 46 24	.5,1,5	1*		
	e_N	4 46 22	2		2*	Local.
	e_E	4 46 26	1.2	2*		
	e_E	4 46 39	1.8	2*		
	e_N	4 46 39	1.3		2*	
	e_E	4 46 50	2	3*		
	S_N	4 46 53	1.2		1*	
	e_E	4 46 55	1.5	1*		
	$\underline{S}_E$	4 46 57	.5, 2	10*		
	$\underline{S}_N$	4 46 57	1.5		3*	
	i_E	4 46 59	.5	8*		
	L_E	4 47 05	1.8	20*		
	i_N	4 47 05	1.3		6*	
	iL_N	4 47 09	1.8		11*	
	L_E	4 47 14	1.8	25*		
		(continued				

* indicates trace amplitude in one-tenth millimeters.

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Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 19		(continued)				
	?M_E	4 47 18	3	11*		
	?M_N	4 47 19	1,2		11*	
	M_N	4 47 40	1.8		10*	
	?M_N	4 48.4	4		4*	
	F	4 55				
Jan. 19	?e$\overline{P_E}$?	4 51 59		1*		
	?e$\overline{P_N}$?	4 51 59			1*	Local aftershock.
	e_N	4 52 25	.8		1*	
	e_E	4 52 37	.5	1*		
	e_E	4 52 42	.5	1*		
	e_N	4 52 42	.5		1*	
	e_E	4 52 45.5	.8	1*		
	$\overline{S_E}$?	4 52 49	1	2*		
	L_E	4 52 54	1.5	2*		
	e_N	4 52 52	.8		1*	
	L_N	4 52 56	1.2		2*	
	?L_E	4 53 02	1.5	2*		
	L_N	4 53 04	2		1*	
	M_E	4 53 29	1.5	1*		
	M_N	4 53 26	1.5		1*	
	F	4 55				
Jan. 19	P_E?	7 15 05	.5	1*		
	?e_E	7 15 11	.5	1*		Local aftershock.
	e_E	7 15 25	.8	1*		
	$\overline{S_E}$?	7 16 12	.8	1*		
	S_N?	7 16 12	.8		1*	
	e_E	7 16 14	.8	1*		
	e_N	7 16 14	.8		1*	
	eL_E?	7 16 16	1.8	1*		
	L_N?	7 16 21	.8		1*	
	L_N	7 16 23	1		1*	
	L_N	7 16 27	.8,2		1*	
	L_E	7 16 33	.8	1*		
	?L_E	7 16 39	1	1*		
	L_N	7 16 39	1.5		1*	
	M_E	7 16 54	1.2	1*		
	?M_N	7 16 54	1		1*	
	F	7 17.1				
Jan. 19	$\overline{P_N}$?	2 53 00	.5		1*	
	e_N	2 53 03	.5		1*	Local aftershock.
	e_N	2 53 06	.5		1*	
	e_E	2 53 40		1*		
	e_N	2 53 40	1		1*	
	e_E	2 53 45	.5	1*		
	$\overline{S_N}$?	2 53 45	1?		1*	
	$\overline{S_E}$?	2 53 47	2	1*		
	L_N	2 53 54	1.5		2*	
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

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Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 19		(continued)				
	L_E	2 53 57	.8	1*		
	L_E	2 54 02	2	2*		
	L_N	2 54 02	.8		1*	
	M_E	2 54 15	1.5	1*		
	M_N	2 54 13	1.5		1*	
	e_E	2 54 32	.8	1*		
	F	2 55.6				
Jan. 19	e_N	3 11 36				
	$\overline{P}_N$?	3 11 38	.6		1*	Local aftershock.
	e_N	3 11 41	1		1*	
	$\overline{S}_N$	3 12 36	1		1*	
	?M_N	3 13.7	3		1*	
	F	3 15				
Jan. 19	?e_E	3 54 57		1*		
	?e_N	3 54 58			1*	Local aftershock.
	?e_N	3 55 19				
	?e_E	3 55 25		1*		
	?e_N	3 55 24				
	e_E	3 55 37	.6	1*		
	e_N	3 55 37	.5		1*	
	$\overline{S}_E$?	3 55 41	1	1*		
	$\overline{S}_N$?	3 55 42	.5		1*	
	L_E	3 55 43	2	1*		
	L_N	3 55 46	.5,2		2*	
	i_E	3 55 53	1	2*		
	?L_E	3 56 00	2?	1*		
	?L_N	3 56 00	1.5		1*	
	M_N	3 56 18	2		1*	
	F	3 56.6				
Jan. 19	?$\overline{P}_N$?	4 16 06				
	?e_N	4 16 35				Local aftershock.
	$\overline{S}_E$?	4 16 59	.5	1*		
	$\overline{S}_N$?	4 16 59				
	e_E	4 17 02	1	1*		
	e_N	4 17 01	.5		1*	
	e_N	4 17 04	.5		1*	
	L_E?	4 17 12	2	1*		
	L_N	4 17 12	1		2*	
	?L_E	4 17 26	2.5	1*		
	L_N	4 17 25	1		2*	
	?L_N	4 17 45				
	F	4 18.6				
Jan. 19	?e_N	9 02 42				
	?e_E	9 02 50				Local aftershock.
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

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Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 19		(continued)				
	?e_N	9 02 09				
	e_E	9 03 13				
	$\overline{S}_E$?	9 03 26	.5	1*		
	$\overline{S}_N$?	9 03 27	.5		1*	
	e_E	9 03 31	.5	1*		
	e_N	9 03 34	.5		1*	
	L_E	9 03 36	1,2.5	1*		
	L_N	9 03 38	1.5		1*	
	M_E	9 03 54	1.5	1*		
	?M_N	9 04 02	10		1*	
	F	9 05				
Jan. 19	?$\overline{P}_N$?	11 30 06				
	e$\overline{P}_E$?	11 30 09	.5	1*		Local aftershock.
	e_N	11 30 11	.8		1*	
	e_E	11 30 18	.7	1*		
	e_E	11 30 23	1?	1*		
	e_N	11 30 23	.8		1*	
	e_E	11 30 37	.8	1*		
	e_E	11 30 44	.8?	1*		
	e_N	11 30 42	1		1*	
	$\overline{S}_E$?	11 30 51	1.2	1*		
	$\overline{S}_N$?	11 30 51	1.0		1*	
	i_N	11 30 55	1.2		1*	
	eL_E	11 30 58	?	2*		
	L_N	11 31 02	.9		2*	
	L_N	11 31 20	.9		1*	
	L_N	11 31 22	2		2*	
	M_N	11 32 10	1.5		1*	
	F	11 33				
Jan. 19	?e_E	14 41 14				Calexico.
	?e_N	14 41 14			1*	Local aftershock.
	$\overline{P}_E$?	14 41 16	.6	1*		
	$\overline{P}_N$?	14 41 16	.6		1*	
	e_E	14 41 19	.6	1*		
	e_N	14 41 21	.6		1*	
	e_N	14 41 38	.6,1.6		1*	
	e_N	14 41 52	1.5		1*	
	?e_N	14 42 04	.6		1*	
	$\overline{S}_E$?	14 42 07	.5	2*		
	iL_N	14 42 15	.5,2		1*	
	L_N	14 42 28	1?		2*	
	L_E	14 42 38				
	F	14 44.5				
Jan. 20	O_1	10 56 26				Δ_1 = 7280 km.
	O_2	10 56 31				Δ_2 = 7200 km.
	P_E	11 07 09	.1	2*		
	P_N	11 07 09	1,3		2*	
	e_E	11 07 39	1	2*		
		(continued)				

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Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.				
Jan. 20		(continued)				
	?e_N	11 07 37	3.5		2*	
	PcP_E	11 07 52	2?	2*		
	PcP_N	11 07 53	4		4*	
	PR_{4N}?	11 11 41	6		2*	
	PcS_N?	11 12 18	.5		2*	
	S_E	11 15.9	3	1*		
	S_N	11 15 52	6		2*	
	PS_E	11 16 37	6	2*		
	PS_N	11 16 40	8?		2*	
	?PS_E	11 16 57	6	2*		
	ScS_E?	11 17 35	3	1*		
	ScS_E?	11 17 47	.6	2*		
	ScS_N	11 17 48	5		3*	
	F	12.1				
Jan. 21	P_E?	19 06 08	2.5	1*		Apparently a group of P waves only.
	P_N?	19 06 07	3		1*	
	e_E	19 06 25	2.5	3*		
	e_N	19 06 28	3		3*	
	e_N	19 07.0	2.5		2*	
	e_N	19 06.0	3,5		2*	
	F	19 10				
Jan. 24	?P_E?	1 18 37	5	1*		
	?P_E?	1 18 49	5	1*		
	P_E	1 18 53	1	1*		
	P_N	1 18 55	1		1*	
	e_E	1 19 27	5	2*		
	e_N	1 19 23	5		2*	
	?e_N	1 20 09	1,4		2*	
	e_E	1 20 22	4	2*		
	e_E	1 21 10	5	3*		
	e_E	1 21 44	4	3*		
	?ePR_{1N}	1 22 25	4.5		2*	
	e_N	1 23 53	4.5		3*	
	e_N	1 27 15	5		2*	
	SPS_E	1 29 06	10?	2*		
	?e_N	1 29 26				
	S_N	1 30 10	12?		2*	
	PS_E	1 31 20	3,10	3*		
	PS_N	1 31 16	3		2*	
	?e_E	1 32 20	5,30?	3*		
	?e_N	1 32.3	12?		1*	
	e_E	1 34.2	15	2*		
	SR_{1E}	1 36 09	9	1*		
	SR_{1N}	1 36.3	23?		2*	
	?e_E	1 36 22	23?	1*		
	e_E	1 37 40	15	2*		
	e_N	1 37.5	15		1*	
	SR_{3N}?	1 42.7	18,45		2*	
	?L_N	1 47.6	5		2*	
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

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Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 24		(continued)				
	L_N	1 50 18	10?		1*	
	L_E?	1 50 50	16	2*		
	L_E	1 51 27	20			
	L_N	1 51.5	18			
	nL_E	1 55.5				
	M_{1E}	2 03	17	7*		
	nL_N	1 58.5				
	M_{1N}	2 01.5	16		5*	
	nL_E	2 06.3				
	M_{2E}	2 09.5	16	4*		
	nL_N	2 05				
	M_{2N}	2 09.5	15		4*	
	nL_E	2 11.2				
	M_{3E}	2 13.3	15	4*		
	nL_N	2 12.0				
	M_{3N}	2 14.5	15		5*	
	F	3.0				
Jan. 28	?$\overline{P}_N$?	17 08 53			1*	Calexico.
	?e_E	17 09 01		1*		Local aftershock.
	e_N	17 08 58	.4		1*	
	e_E	17 09 05	.5	1*		
	e_N	17 09 04	.4		1*	
	e_N	17 09 15	.4		1*	
	e_E	17 09 31	.8	1*		
	S_E	17 09 35	.5	1*		
	S_N?	17 09 35	?		2*	
	e_E	17 09 40	.6	1*		
	?e_N	17 09 41	.8		1*	
	$\underline{S}_E$	17 09 49	1.6	1*		
	$\underline{S}_N$	17 09 48	.4,1.5		1*	
	L_E	17 09 59	1.2	3*		
	e_N	17 09 57	1		1*	
	e_N	17 10 01	.9		1*	
	M_E	17 10 26	1.5	2*		
	M_N	17 10 26	?		1*	
	M_E	17 10 48	1,2	2*		
	M_N	17 10 44	1,3		3*	
	M_N	17 11 05	2.3		2*	
	F	17 12.5				
Jan. 28	$\overline{P}_E$?	17 57 47		1*		
	$\overline{P}_N$?	17 57 47			1*	Local aftershock.
	e_N	17 57 55	.8		1*	
	e_E	17 58 03		1*		
	e_N	17 58 03	1		1*	
	e_E	17 58 15	.8	1*		
	e_E	17 58 25	.8	1*		
	S_E?	17 58 34	1	1*		
	S_N?	17 58 32	.5		1*	
	e_E	17 58 41	1	1*		
	e_N	17 58 43	.4		1*	
	i_N	17 58 45	.5		2*	
		(continued)				

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Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 28		(continued)				
	iS_N?	17 58 47	.6		3*	
	$\overline{S}_E$	17 58 46	.3	3*		
	S_N	17 58 48	.7		5*	
	L_E	17 58 52	.8	2*		
	L_N	17 58 52	1.5?		4*	
	L_E	17 59 02	.9	2*		
	L_N	17 59 00	?		4*	
	L_N	17 59 08	?		4*	
	M_E	17 59 44	1	1*		
	F	17 59.2				
Jan. 29	?P_N?	7 40 14			1*	
	?e_N	7 40 18	.8		1*	Local aftershock.
	$\overline{P}_E$	7 40 27	.6	1*		
	$\overline{P}_N$	7 40 29	.5		1*	
	e_N	7 40 43	.5		1*	
	e_E	7 40 54	.8	1*		
	e_N	7 40 55	.8		1*	
	e_N	7 41 02	.8		1*	
	S_E?	7 41 08	1.2			
	S_N?	7 41 08	.8,2?		1*	
	e_E	7 41 16	.5	1*		
	e_N	7 41 13	.5		1*	
	$\overline{S}_E$	7 41 21	1.2	2*		
	?$\overline{S}_N$	7 41 21	2?		3*	
	$\overline{S}_E$?	7 41 26	1.8	2*		
	$\overline{S}_N$?	7 41 25	2?		3*	
	?L_E	7 41 29	3?	1*		
	L_N	7 41 40	2		3*	
	L_E	7 41 35	1.7	3*		
	L_E	7 41 51	1.5,3	1*		
	M_E	7 42 11	4	2*		
	e_E	7 42.6	2	1*		
	F	7 43.5				
Jan. 30	?$\overline{P}_N$?	21 44 36			1*	
	$\overline{P}_E$?	21 44 39		1*		Local aftershock.
	e_E	21 44 51	.8?	1*		
	e_N	21 44 53	1?		1*	
	?S_N?	21 45 08	1.5		1*	
	S_E?	21 45 10	1?	1*		
	$\overline{S}_E$?	21 45 17	1.5	2*		
	$\overline{S}_N$?	21 45 17	.8		1*	
	e_N	21 45 24	1?		2*	
	L_E	21 45 31	1.5,2	2*		
	L_N	21 45 30	1,1.8		2*	
	L_E	21 45 42	1.5,2	1*		
	L_N	21 45 38	1.8		3*	
	F	21 47.3				

* indicates trace amplitude in one-tenth millimeters.

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Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 31	S_E	8 18 52	2	1*		
	eS_N	8 18 58?	3		2*	
	e_N	8 19 06	.5,2		2*?	
	e_E	8 19 14	3	1*		
	e_N	8 19 13	1,2		3*	
	e_N	8 19 18	3		4*	
	e_E	8 19 31	1.5	3*		
	e_E	8 19 40	1.8	5*		
	e_N	8 19 39	2		5*	
	e_E	8 19 48	2.5?	7*		
	?e_N	8 19 46	1,6			
	iL_E	8 20 01	1	5*		
	iL_N	8 20 00	3		14*	
	M_{1N}	8 20 33	3.5		45*	
	iL_E	8 20 04	1	7*		
	fL_E	8 20 13	1,3 6			
	M_{1E}	8 20 38	2	51*		
	fL_N	8 20 48	1.5,5			
	?L_E?	8 20 55	3.5	36*		
	?L_N	8 20 56	3		75*	
	L_N	8 21 46	4		15*	
	F	8.6				
Jan. 31	$\overline{P}_E$?	8 42 50	2?	1*		Local aftershock.
	P_N?	8 42 47				
	e_E	8 43 04	.8	1*		
	e_N	8 43 05	1.5?		1*	
	e_E	8 43 11	1	1*		
	$\overline{e}_E$	8 43 17	.8	1*		
	$\overline{S}_E$?	8 43 45	1.5?	2*		
	e$\overline{S}_N$?	8 43.7	6		2*	
	?L_E?	8 44.8	4	1*		
	F	8.8				
Jan. 31	?e_E	10 02 08		1*		Local aftershock.
	?e_E	10 02 29?				
	?S_N?	10 02.3				
	$\overline{S}_E$	10 02 34	1	1*		
	S_N	10 02 33	0.5		1*	
	e_N	10 02 38	1		1*	
	e_E	10 02 44	.8	1*		
	L_N	10 02 46	1.0		2*	
	L_E	10 02 48	2	2*		
	L_N	10 02 57	2,6		3*	
	L_E	10 03 13	2?	2*		
	L_E	10 03 31	2	1*		
	?L_E	10 03 50	4	1*		
	F	10 07				
Jan. 31	$\overline{P}_E$?	10 20 24	1	1*		Local aftershock.
	P_N?	10 20 26	1		1*	
	e_E	10 20 33	1	1*		
	e_N	10 20 31	.8		1*	
	e_E	10 20 40	1	1*		
	e_E	10 20 47	.6	1*		
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

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Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 31		(continued)				
	e_N	10 20 51	1.5		1*	
	e_E	10 20 56	1.2	2*		
	S_E?	10 21 10	2.1	2*		
	S_N?	10 21.1	2		2*	
	$\underline{S}_E$?	10 21 22	1.1	3*		
	e_E	10 21 27	2	4*		
	e_E	10 21 30	5?	2*		
	eL_N?	10 21.5	2.5		3*	
	iL_E	10 21 37	1.8	5*		
	L_N	10 21.7	3,5		5*	
	fL_E	10 21 44	4?	3*		
	iL_E	10 21 51	1,4	3*		
	$?L_E$	10 22 15	3	5*		
	F	10 26				
Jan. 31	$?e_E$	11 17 00		1*		
	S_E?	11 17 27	2?	1*		Local aftershock.
	$\underline{S}_N$?	11 17 28			1*	
	$\underline{S}_E$?	11 17 40	.2	2*		
	$\underline{S}_N$?	11 17 39	1		1*	
	$?L_E$	11 17 48	2	2*		
	$?L_N$	11 17 45	1.5		1*	
	$?L_E$	11 17 54	6	2*		
	L_N	11 17.9	2,5?		1*	
	$?L_E$	11 18 39	1.5	2*		
	L_N	11 18 33	2?		2*	
	F	11 20				
Jan. 31	$\overline{P}_E$?	11 21 46		1*		
	$\overline{P}_N$?	11 21 45	.6		1*	Local aftershock.
	e_E	11 22 04	.5,1.5	1*		
	e_N	11 22 05	.8		1*	
	e_N	11 22 23	1		1*	
	$\overline{S}_N$	11 22 29	1.6		2*	
	e_N	11 22 42	1.3		1*	
	L_E	11 22 47	2	2*		
	L_N	11 22 47	2.5		2*	
	F	11 25				
Jan. 31	e_N	11 28.3	1,3		1*	
	e_E	11 28 33	1.5	1*		Local aftershock.
	$?e_E$	11 28 46	1	1*		
	e_E	11 28 58	2?	2*		
	F	11 31				
Jan. 31	$?P_N$?	11 58 46			1*	F lost in following shock.
	e_E	11 58 51		1*		Local aftershock.
	e_E	11 58 56	1	1*		
	e_N	11 58 55	1.5		1*	
	e_N	11 58 59	.5		1*	
	$\underline{P}_E$?	11 59 03	1.2	1*		
	$\underline{P}_N$?	11 59 02	1.0		1*	
	e_E	11 59 06	0.8	1*		
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

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Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 31		(continued)				
	e_E	11 59 23	1	1*		
	e_N	11 59 21	1.5		1*	
	e_E	11 59 28	2?	2*		
	e_N	11 59 31	1.0		2*	
	S_E?	11 59 39	2.5	2*		
	S_N?	11 59 41	2?		2*	
	e_E	11 59 46				
	e_N	11 59 48	2		2*	
	iS_E	11 59 56	1.5			
	M_{1E}	11 00.1	2.5	5*		
	iS_N	11 59 55	1.3		3*	
	L_N	11 59 59	5?		5*	
	M_{1N}	12 00.5	5		7*	
	L_E	11 00 15	1.8	5*		
	L_E	11 00.7	4	6*		
	L_E	11 00 58	4.5	4*		
	?M_N	12 00.9	4?		6*	
	iM_N	12 01 10				
	?M_N	12 01.8				
Jan. 31	?e_E	12 05 33	1.5	1*		First phase not typical of
	?e_N	12 05 37	1		1*	preliminary type.
	S_E?	12 06 01	.5	1*		Local aftershock.
	e_N	12 06 06	1.5		1*	
	e_E	12 06 05	.8	1*		
	e_E	12 06 11	1	1*		
	S_E	12 06 13	1.5	3*		
	S_N	12 06 13	.5		2*	
	L_E	12 06 28	1.8	2*		
	?L_E	12 06 40	2.0	2*		
	L_N	12 06 41	4		3*	
	F	12 10				
Jan. 31	P_E	20 34 57		1*		
	?P_N	20 34 58			1*	Local aftershock.
	e_E	20 35 03	.8	1*		
	e_N	20 35 04	.5		1*	
	e_E	20 35 08	.8	1*		
	e_N	20 35 12	.4		1*	
	e_E	20 35 23	1.1	1*		
	e_N	20 35 29	1			
	e_E	20 35 27	.6	1*		
	S_E	20 35 58	1.3	2*		
	S_N	20 35 56	1			
	e_E	20 36 02	1	2*		
	e_N	20 36 02	1.3			
	L_E	20 36 08	2	2*		
	L_N	20 36 12	1.3			
	L_E	20 36 22	2	2*		
	F	20 39				

* indicates trace amplitude in one-tenth millimeters.

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Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Jan. 31	e_N	21 01 57	1		1*	
	e_E	21 02 03	1.1	1*		Local aftershock.
	e_N	21 02 03	1		1*	
	S_E?	21 02 21	1.2	1*		
	S_N?	21 02 22	1.4		1*	
	e_N	21 02 38	.8		1*	
	S_E?	21 02 41	2	1*		
	S_N?	21 02 41	1.5		1*	
	L_E	21 02 56	2	2*		
	?L_N	21 02 51	1.9		2*	
	L_E	21 03 08	1.5	3*		
	L_E	21 03 21	2.5	3*		
	L_N	21 03 20	2,6			
	M_{1N}	21 03 21	2		5*	
	L_E	21 03 45	2.6	3*		
	F	21 08				** See page 69 for two earthquakes omitted.
Feb. 1**						
Feb. 1	P_N	18 10 15	3,5		2*	EW record lost.
	eL_N	18 42.4	20		2*	
	F	19.5				
Feb. 11	P_{nE}	3 41 12	0.5	1*		Local. Jeffrey's nomenclature
	P_{nN}	3 41 12	0.5		1*	
	iP^*_E	3 41 21	1.2	16*		Severely felt near Nacozari, Mexico. Δ = ± 280 km.
	iP^*_N	3 41 21	1?		8*	
	iPg_N	3 41 29	0.5?		20*	
	iS^*_{1E}	3 41 53				
	M_{1E}	3 42 06	2?	75*		
	iS^*_N	3 41 53				
	nL_N	3 42.2	5			
	F	3 53				
Feb. 12	P_E?	7 12 45	3	1*		
	P_N?	7 12 43				
	?S_E?	7 16 34				
	L_E	7 18 43	6	6*		
	L_N	7 18 45	4		11*	
	L_N	7 20.6	8		8*	
	F	7.4				
Feb. 12	P_{nE}	8 59 23	0.5	1*		Calexico.
	P_E	8 59 28	0.5	1*		
	eP_E	8 59 37	2	5*		
	eP_N	8 59 37	0.5		1*	
	P_N	8 59 43	2		5*	
	P_N	8 59 52				
	e_N	9 00 21	2		7*	
	S, L_E	9 00.5	2	35*		
	S, L_N	9 00.6	2		25*	
	F	9 12				
Feb. 15	P_E	6 19 57	0.5	1*		Calexico. Preliminaries on EW lost because of weak trace. Local aftershock.
	P_E	6 20 01	0.5	1*		
	P_E	6 20 05	0.5	1*		
	eS_E?	6 20 39	1			
	eL_N	6 20 56	2		1*	
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

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Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. *A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Feb. 15		(continued)				
	eL_E	6 20 57				
	M_{1E}	6 21 03	2	3*		
	F	6 24				
Feb. 15	e_E	23 59.4				Calexico.
	e_N	23 59.4				Local aftershock.
	eL_E	23 59 50	2	3*		
	eL_N	24 00.9	3		4*	
	F	24.1				
Feb. 16	O_1	1 35 27				Δ_1 = 7920 km.
	O_2	1 35 36				Δ_2 = 7760 km.
	P_E	1 46 44	5			
	P_N	1 46 44	5			
	S_E	1 56 00	7	6*		
	eS_N	1 56 00	10			
	SR_{1N}	2 00.6	15			
	eL_N	2 05.2	32?			
	M_{1N}	2 07.2	20		5*	
	M_{1E}	2 17.7	9	4*		
	F	3.1				
Feb. 16	e_E	3 07.8	4	1*		
	e_N	3 07.8	3		1*	
	F	3 15				
Feb. 21	e_E	16 52 47	1	1*		Local; aftershock.
	e_N	16 52 47	1		1*	
	F	16 54.4				
Feb. 21	e_E	21 54 13	2	1*		local aftershock.
	e_N	21 54 16	2		1*	
	F	21 56				
Feb. 21	e_E	22 04 13	2	1*		Local aftershock.
	e_N	22 04 16	2		1*	
	F	22 06.5				
Feb. 21	e_E	22 15 33	2	1*		Local aftershock.
	e_N	22 15 36	2		1*	
	F	22 17.4				
Feb. 24	P_E	4 19 31	3	1*		
	P_N	4 19 31	3		2*	
	S_E?	4 24.1	5	3*		
	S_N?	4 24.0	4		3*	
	e_E	4 27.1	4	2*		
	e_N	4 27 35	4		3*	
	eL_E	4 32.5	12	3*		
	eL_N	4 30 08	17		6*	
	eL_N	4 32.3	12		5*	
	F	4.7				
Feb. 24	P_E	7 03 47		1*		Local aftershock.
	P_N	7 03 38	1		1*	
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

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Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Feb. 24		(continued)				
	P_N	7 04 17	1			
	eL_E	7 04 33	2	2*		
	eL_N	7 04 36	2		1*	
	F	7 07				
Feb. 27	P_E	4 01 52	2	2*		
	P_N	4 01 52	2		1*	
	S_E?	4 05 03	5	1*		
	eL_E	4 07.6	8	3*		
	eL_N?	4 07 15	11			
	M_{1N}	4 08.0	10		5*	
	F	4.3				
Feb. 27	P_E	7 28 26	1	1*		Local. NS almost invisible.
	S,L_E	7 30 01	1	2*		Aftershock.
	F	7 32				
Feb. 28	O_1	14 07 57				Δ_1= 7880 km.
	O_2	14 08 06				Δ_2= 7710 km.
	P_E	14 19 12	2	2*		
	iP_N	14 19 12	4		5*	
	S_E	14 28 26	6	2*		
	S_N	14 28 26	8			
	eL_E	14 42.5	25			
	M_{1E}	14 46.0	20	3*		
	eL_N	14 42.5	30			
	M_{1N}	14 47	20		4*	
	F	15.0				
Mar. 3	P'_N	1 24 13	2		1*	EW record lost.
	PR_{1N}	1 26 00	4		1*	
	ePS_N	1 33.6				
	eL_N	2 03.8	30		2*	
	F	2.4				
Mar. 7	O_1	9 27 45				Δ_1= 9760 km.
	O_2	9 27 46				Δ_2= 9730 km.
	P_{1E}	9 40 35	2	1*		
	P_{2E}	9 40 43	3	1*		
	P_N	9 40 43	4		3*	
	S_E	9 51 22	4	5*		
	S_N	9 51 22	4		5*	
	i_N	9 51 32	4		10*	
	eLq_N	10 04.2	45		9*	
	eL_E	10 07.8	20	3*		
	M_{1E}	10 16.4	19	6*		
	eL_N	10 07.2	20			
	M_{1N}	10 08.0	18		21*	
	F	11.4				
Mar. 9	O_1	16 12 54				Δ_1= 4080 km.
	O_2	16 12 41				Δ_2= 4260 km.
	P_E	16 20 18	3	1*		NS record lost.
	PR_{1E}	16 21.8	3	1*		
		(Continued)				

* indicates trace amplitude in one-tenth millimeters.

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Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Mar. 9		(continued)				
	S_E	16 26 10	5	2*		
	eL_E	16 32.4	13			
	M_{1E}	16 35	8	2*		
	F	16.7				
Mar. 12	P_N	18 56 05	2		1*	No L activity apparent and S doubtful. P very clear resembling local shock.
	iP_N	18 56 08	4		5*	
	iP_E	18 56 08	4	5*		
	$?eS_N?$	19 04 57	6		2*	
	$?PS_N?$	19 05 57	5		1*	
	F	19.1				
Mar. 22	e_N	21 49 29	2		1*	Local aftershock. Defective photographic paper caused some loss of record after March 15.
	e_N	21 50 06	2		5*	
	F	21 52				
Mar. 25	O_1	12 55 02				Δ_1= 4300 km.
	O_2	12 54 51				Δ_2= 4460 km.
	P_N	13 02 42	4		1*	EW record lost.
	S_N	13 08 46	4		2*	
	SR_N	13 12.5	5		3*	
	eL_N	13 15.3	20		4*	
	F	13.3				
Mar. 28	P_N	8 00 48	4		3*	EW record lost.
	$S_N?$	8 04 28	5		3*	
	$L_N?$	8 08 23				
	F	8.2				
Feb. 1**	L_E	4 07 40	4	2*		Local aftershock. F lost in following shock.
	eL_N	4 07 39	4		2*	
	e_E	4 07 47	1.5	1*		
	$?e_N$	4 07 48	1.5		1*	
	e_E	4 07 58	1.5	1*		
	e_N	4 07 56	1.5		1*	
	e_N	4 08 31	1.5		4*	
	M_N	4 08 49	3		2*	
Feb. 1**	eL_E	4 15 10	4			Possibly part of preceding shock.
	M_{1E}	4 16.9	4.5	3*		
	L_N	4 15.0				
	M_{1N}	4 15 22	4		4*	
	F	4 20				

* indicates trace amplitude in one-tenth millimeters.

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Table IIa. Microseisms. C. and G. Survey Magnetic Observatory.

HONOLULU, Hawaii. H. E. McComb, In Charge.

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Days of subnormal activity: Max. A_{EN} about 6μ	Jan. 14-16 Feb. 6-9 Mar. 2-5
Days of normal activity: Max. A_{EN} about 12μ	Jan. 1-3, 8-13, 20-31 Feb. 1-5 Mar. 6-10, 24-28
Days of abnormal activity: Max. A_{EN} about 18μ	Jan. 4-7, 17-19 Feb. 10-28 Mar. 1, 11-23, 29-31

Table IIa. Microseisms. Theosophical University.

POINT LOMA, California. F. J. Dick, Observer.

See table II for microseismic activity recorded at this station.

Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from January 1, 1927 to March 31, 1927.

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List of Seismological Observatories and Station Symbols.

*BER	Berkeley, Calif.	**MAN	Manila, P. I.
CAM	Cambridge, Mass.	*MOB	Mobile, Ala.
CHE	Cheltenham, Md.	*NOR	New Orleans, La.
CHI	Chicago, Ill.	*NYF	New York (Fordham), N.Y.
*CLA	Santa Clara, Calif.	*OTT	Ottawa, Can.
CZB	Canal Zone, Balboa Heights.	*SAS	Saskatoon, Can.
*DEN	Denver, Colo.	SIT	Sitka, Alaska.
*GEO	Georgetown, D.C.	SJU	San Juan, P. R.
GUAM	Guam, M. I.	*SPO	Spokane, Wash.
*HAL	Halifax, Can.	*STA	Ste.Anne de la Pocatiere, Can.
HON	Honolulu, T.H. (Ewa)	*STL	St. Louis, Mo.
**HVO	Hawaiian Volcano Obs'y.	*TOR	Toronto, Can.
ITH	Ithaca, N. Y.	TUC	Tucson, Ariz.
LOM	Point Loma, Calif.	*VIC	Victoria, B. C.
*LICK	Lick Obs'y., Calif.		

* Instrumental registers are not published in this report.

** Only teleseismic reports are noted in this table. See introductory remarks.

NOTE.

See introductory remarks concerning tabulation of provisional origins. Observatories listed in this table are limited to those submitting monthly reports to the Coast and Geodetic Survey in time for routine publication. Although foreign reports are also utilized, reference to them is not made because of the limited purpose which this report serves. When origins are determined by other institutions such as the Central Seismological Bureau at Strasbourg, the source of information is stated.

An asterisk (*) after the tabulated time indicates instrumental time of origin. Otherwise the tabulated time refers to the approximate time the earthquake was felt, or the time at which the initial phase was recorded at the first observatory named, if not felt.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927			
Jan. 1	6 36	-----	CHE
1	8 16.9*	Calif., near Calexico 32.7° N., 115.5° W.	Destructive. TUC CHI CAM MOB LICK BER ITH OTT VIC CHE Aftershock at 9:04.
1	9 13.7*	Calif., near Calexico 32.7° N., 115.5° W.	Destructive. TUC CHI CAM ITH OTT VIC STL NYF LICK BER
1	9 31.9*	Calif., near Calexico	Felt. TUC CHI Aftershock at 9:37.
1	9 44.7	-----	CHI
1	10 03.2*	Calif., near Calexico	Felt. TUC CHI LICK Aftershocks at 10:11 and 10:18; both felt.
1	10 31.6*	Calif., near Calexico	Felt. TUC CHI LICK. Aftershocks at 11:21, 11:33, 12:09, 12:49, 12:54 and 12:56.

Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from January 1, 1927 to March 31, 1927.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927 Jan. 1	12 58.6*	Calif., near Calexico	TUC VIC CHI OTT LICK BER. Aftershocks: Jan. 1st 13:27, Jan. 2d, 1:58, 3:56, 8:48, 12:23, 13:15, and 14:06.
2	14 58.5	-----	HON OTT
3	22 09.0*	21° N., 135° E.	MAN
3	23 54.0*	25° N.?, 106° W.?	CHI TUC VIC OTT
5	5 57	-----	GUAM
5	22 17	-----	GUAM
5	22 30	Guam	Felt. GUAM.
5	23 03	Calif., near Calexico	TUC OTT. Aftershocks: Jan. 5th, 23:16, 23:39, Jan. 6th, 16:38.
6	2 49	-----	GUAM
6	4 10	Guam	Felt. GUAM. Aftershocks: 4:18, 4:33 and 4:48.
6	7 03	Guam	Felt. GUAM. Aftershocks: 7:11 and 7:19.
6	8 52	Guam	Felt. GUAM. Aftershocks: Jan. 7th, 0:14, 2:47, 2:52, 2:53, and 3:19.
7	9 16.2*	Calif., near Calexico	TUC OTT VIC CHI MOB
7	9 28.2*	Calif., near Calexico	TUC. Aftershocks: Jan. 13th, 10:49 and 11:28.
7	10 42.8*	Arctic O., 81° N., 115° E.	CHI VIC OTT
9	9 04	-----	GUAM
10	17 25	Guam	Felt. GUAM. Aftershock: Jan. 13th at 1:14.
14	2 34.4*	Calif., near Calexico	TUC OTT VIC CHI. Aftershock: Jan. 16th at 17:06.
15	13 33	-----	GUAM
16	3 56	-----	GUAM
16	19 06.0*	Calif., near Calexico	Felt. TUC OTT. Aftershock: Jan. 18th at 13:15.
17	21 58.3*	Japan, 41° N., 144°E.	Felt. MAN VIC OTT
18	23 51	-----	TUC BER
18	23 56.9*	Calif., near Calexico	TUC NYF OTT VIC. Aftershock: Jan. 19th at 0:28.
19	1 12	-----	TUC
19	1 18.9*	Calif., near Calexico	TUC DEN CHI VIC LICK BER OTT. Aftershocks: 1:37 and 2:21.
19	2 25.0	Calif., near Calexico	TUC OTT VIC. Aftershocks: 2:53, 3:11, 3:54 and 4:16.
19	4 45.1	Calif., near Calexico	TUC OTT. Aftershocks: 4:51, 7:15, 9:02, 11:30, and 14:41.
19	21 00	-----	GUAM.
20	10 56.4*	21.2° S., 70.2° W.	TUC MAN OTT VIC. Epicenter quoted from La Paz.
21	3 01	-----	CZB
21	3 48	-----	CZB
21	4 00	-----	CZB
21	9 33	-----	CZB
21	19 06	-----	TUC
23	9 00	-----	NYF
24	1 05.5*	Pacific O., S.W., New Hebrides, 18°S., 169° E.	TUC SIT HON ITH MAN CAM STL NYF DEN OTT VIC CHE CHI HVO LICK BER

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Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from January 1, 1927 to March 31, 1927.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927 Jan. 24	6 42.2*	Pacific O., S.W., 18° S., 169° E.	HON ITH OTT VIC CHI HON
24	15 20	-----	CZB
25	7 53.4*	Pacific O., S.W., 18° S., 169° E.	CHI HON MAN OTT VIC
25	13 14	-----	OTT
25	23 10.6*	Pacific O., S.W., 18° S., 169° E.	CHI HON ITH MAN NYF OTT VIC BER
26	0 08	-----	ITH
26	1 50	-----	GUAM
26	15 36.2*	Pacific O., S.W., 18° S., 169° E.	HON MAN OTT VIC CHI
27	18 16.9*	Pacific O., S. W., 18° S., 169° E.	OTT. Location quoted from Wellington.
28	13 01	-----	CZB
28	17 08	Calif., near Calexico	TUC. Aftershocks: 17:57, Jan. 29, 7:40, Jan. 30, 21:44, Jan. 31, 8:42, 10:02, 10:20, 11:17, 11:21, 11:28, 11:58, 12:05, 20:34, 21:01.
28	21 35	-----	GUAM
29	18 10	-----	GUAM
29	18 50	-----	OTT VIC
30	8 55.1*	Arctic O., 81° N., 115° E.	OTT
31	0 23.4*	53° N., 158° E.	OTT
31	8 19	Probably off lower California.	TUC VIC HON GUAM CHI VIC
31	14 56	-----	GUAM
Feb. 1	4 07	-----	TUC OTT
1	4 14	-----	TUC
1	17 56.5*	Solomon Is., 5° S., 155° E.	TUC HON ITH MAN NYF DEN OTT VIC CAM CHI HVO LICK BER
2	1 03	-----	DEN
3	3 53.0*	China, 31° N., 117°E.	CHI ITH MAN NYF OTT VIC
4	2 49.7*	Pacific O., S.W., 16° S., 168° E.	HON MAN NYF OTT VIC CHI HON
5	0 15.4	-----	SJU
5	4 36.4	-----	SJU
5	23 14	-----	CZB
9	3 51	Guam	Felt. GUAM
9	4 39	-----	GUAM
9	5 48	-----	GUAM
9	7 00	-----	GUAM
9	16 13	-----	CZB
9	18 45	Guam	Felt. GUAM
11	0 12	-----	GUAM
11	3 40.6*	Mexico, 31° N., 109° W.	TUC OTT. Felt near Nacozari, Mexico.
11	17 22	-----	OTT
12	1 59	-----	GUAM
12	7 07.8?*	Off west coast of Mexico.	TUC NYF OTT
12	8 58.4*	Calexico region.	TUC OTT VIC HON LICK. Aftershocks: Feb. 15, 6:19, Feb. 21, 16:52, 21:54, 22:04, 22:15, Feb. 24, 7:03, 7:28.

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Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from January 1, 1927 to March 31, 1927.

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Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927			
Feb. 12	9 49	-----	GUAM
12	16 56	-----	GUAM
14	3 43.3*	42.5° N., 18° E.	OTT VIC. Felt in Herzgovina. Position quoted from Strasbourg.
14	17 47	-----	GUAM
15	10 39	-----	CZB
15	15 53	-----	OTT
15	23 54	Calif., Santa Cruz	Felt. BER TUC
16	1 35.2*	Pacific O., N.W., 47° N., 155° E.	TUC SIT HON ITH MAN CHE CHI STL NYF OTT VIC CAM HVO MOB LICK BER STA
16	3 00	-----	TUC
16	8 36.5*	47° N., 155° E.	OTT
16	11 52.3*	47° N., 155° E.	OTT VIC
16	13 13.7*	47° N., 155° E.	OTT
18	23 56.5*	Pacific O., N.W., P. I., 5° N., 126° E.	MAN OTT
19	4 37	-----	OTT
19	8 09	-----	GUAM
21	9 47	-----	GUAM
21	12 24.9*	Pacific O., N.W., 2° N., 133° E.	MAN OTT
22	19 54.1*	Pacific O., N.W., 27° N., 144° E.	MAN OTT
23	2 49	-----	MAN HVO OTT
24	4 13.2*	Pacific O., N.E., 11° N.?, 90° W.?	CHI TUC NYF OTT VIC MOB
25	15 41.2*	New Zealand, 37° S., 177° E.	Felt. MAN NYF OTT
25	19 41	-----	GUAM
26	2 04.7*	Pacific O., S.E., 18° S., 175° W.?	HON MAN NYF OTT VIC
26	8 40	-----	NYF
27	3 57.0?*	Pacific O., N.E., 42° N.?, 132° W.?	TUC HON MAN OTT VIC CHI LICK BER
28	14 08.0*	Chile, S. A., 29.5° S., 70.5° W.	Felt. TUC HON ITH MAN CHI STL NYF OTT VIC. Position quoted from La Paz.
Mar. 1	3 07	Cuba	Felt. CHI TUC CAM NYF OTT
1	5 28	-----	GUAM
1	23 02	-----	NYF
3	1 05.1*	Sunda Is., 7° S., 121° E.	TUC HON MAN OTT VIC CHI BER
3	16 49.8*	Pacific O., N.W., 46° N., 155° E.	HON MAN OTT
4	6 34	-----	GUAM
5	4 20?	Cuba	Felt. OTT VIC CHI
5	8 39	-----	GUAM
6	1 33.4*	Atlantic O., 27° N., 43° W.	OTT CHI SJU
7	7 33	-----	GUAM
7	9 27.6*	Japan, 35.6° N., 135.2° E.	Destructive. TUC SIT HON ITH MAN STL LICK BER NYF DEN OTT VIC CAM CHE CHI SJU HVO MOB
9	16 12.9*	5° N.?, 83° W.?	HON CHI TUC ITH CZB STL NYF OTT VIC

Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from January 1, 1927 to March 31, 1927.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927			
Mar. 11	21 40	-----	OTT
12	7 47	-----	OTT
12	18 44.4*	Pacific O., S.E., 45° S., 103° W.	TUC OTT
12	22 09	-----	GUAM
13	5 32.3*	Pacific O., S.E., 6° S., 85° W.	OTT VIC CHI
13	8 39	-----	CHI
14	5 15	-----	GUAM
14	7 42.9*	Pacific O., S.E., 26° S., 71° W.	OTT
14	17 37.5*	China, Yunnan. 26° N., 103° E.	MAN OTT VIC
15	10 38.3*	Panama. 8° N.?, 82° W.?	Felt. OTT CZB CHI
15	21 48.5*	China, 39° N., 98° E.	MAN OTT VIC
16	6 52.7*	Pacific O., N.W., 44° N., 147° E.	OTT
17	5 39	-----	GUAM
18	12 06	-----	GUAM
18	21 27.7*	5° N.?, 122° E.?	OTT VIC MAN
20	15 21.7*	Hawaii, 20° N.?, 157° W.?	Felt. HON OTT
20	16 13.3*	Pacific O., N.E., 51° N., 174° W.	HON OTT VIC CHI
20	21 13.8*	Pacific O., N.W., 2° N., 127° E.	MAN OTT
21	8 46.3*	Pacific O., N.E., 51° N., 174° W.	HON OTT
21	9 58.4*	Pacific O., N.E., 51° N., 174° W.	HON OTT VIC
21	15 05.6*	Indian O., 33° S., 59° E.	CHI HON ITH MAN NYF OTT VIC CAM
21	16 45	-----	HON
22	0 59.1*	Pacific O., N.E., 50° N., 175° W.	HON ITH NYF OTT VIC CHI
22	7 32.0?*	8° S.?, 154° E.?	MAN NYF OTT VIC HON
22	21 49	-----	TUC
23	9 09.8?*	Pacific O., S.E., 45° S.?, 103° W.?	MAI OTT VIC HON CHI
24	13 24	-----	CAM
24	17 36.0	-----	SJU
24	12 08	-----	GUAM
25	3 46.5*	56° N., 36° W.	OTT VIC CHI
25	12 55.0*	Pacific O., N.E., 55° N., 158° W.	Felt. TUC SIT HON ITH MAN STL OTT VIC CHI LICK BER
25	17 23	-----	GUAM
25	21 16	New Zealand	Felt. OTT
26	2 28.1*	Tonga Deep, 20° S., 173° W.	OTT
26	13 50	-----	VIC
26	22 50	-----	VIC OTT
28	7 56.3*	State of Washington, 46° N., 126° W.	Felt near Ilwaco. NYF OTT VIC HON CHI TUC
29	22 55	-----	VIC
30	7 33	-----	OTT VIC CHI

International Seismological Centre

Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from January 1, 1927 to March 31, 1927.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927			
Mar. 30	7 38.2	-----	CHI
30	7 55.5*	Alaska, 62° N., 150° W.	Felt. ITH OTT VIC CHI GUAM
30	14 10.5*	Pacific O., S.E., 37° S., 111° W.	OTT VIC
30	21 08.5*	Japan, 35.6° N., 135.2° E.	Felt. MAN OTT

International Seismological Centre

Table IIIa - Distribution of Earthquakes
Jan. 1, 1927 to Mar. 31, 1927

International Seismological Centre

Regions and Dates An underscore (_) indicates a heavy shock. An interrogation mark (?) indicates doubtful classification.	Number of Earthquakes located provisionally	Number of Earthquakes located with uncertainty
Alaska: Mar. 25, 30	2	
United States:		
California: Jan. 1 (9), 5?, 7?, 14?, 16, 18 (2), 19? (2), 28 (2); Feb. 12, 15 (2)	17	5
Washington: March 28	1	
Central America: Jan. 4?;Feb. 11, 12?; Mar. 15?	1	3
Cuba: March 1, 5	2	
South America: Jan. 20; Feb. 28	2	
Europe: Feb. 14	1	
Asia: Feb. 3; Mar. 14, 15	3	
Japan: Jan. 17; Mar. 7, 31	3	
Arctic Ocean: Jan. 7, 30	2	
Atlantic Ocean: Mar. 6, 25	2	
Pacific Ocean:		
N.E. of Lat. 0°, Long. 180°: Jan. 31; Feb. 12, 24?, 27; Mar. 9, 20 (2), 21 (2), 22	9	1
S.E. of Lat. 0°, Long. 180°: Jan. 31?; Feb. 26; Mar. 12, 13, 14, 23, 26, 30	7	1
S.W. of Lat. 0°, Long. 180°: Jan. 24 (2), 25 (2), 26, 27; Feb. 1, 4, 25; Mar. 3, 22?, 25	11	1
N.W. of Lat. 0°, Long. 180°: Jan. 3; Feb. 16 (4), 21, 22; Mar. 3, 16, 18, 20	11	
Indian Ocean: Mar. 21	1	
Locations unknown: Jan. 1 (12), 2 (7), 5 (5), 6 (11), 7 (5), 9, 10, 13 (3), 15, 16 (2), 19 (14), 21 (5), 23, 24, 25, 26 (2), 28 (2), 29 (3), 30, 31 (10); Feb. 1 (2), 2, 5 (3), 6, 7, 9 (6), 10, 11, 12 (3), 14, 15 (2), 16, 19 (2), 21 (5), 23, 24, 25, 26, 27; Mar. 1 (2), 4, 5, 7, 11, 12 (2), 13, 14, 17 (2), 18, 21, 22, 24 (2), 25, 26 (2), 29, 30 (2), 31		(147)
	75	158

General Summary of Earthquakes.

Locations well or approximately known	75
Locations uncertain	11
Locations unknown	147
Total number of earthquakes recorded	233

Table IIIb. Earthquakes whose epicenters have been determined instrumentally. An asterisk (*) indicates that a provisional location has been published through SCIENCE SERVICE, Washington.

International Seismological Centre

Date	Time of Origin G. M. T.	Epicenter	
		Latitude	Longitude
1927	h. m.	°	°
January 1	8 16.9	32.7 N	115.5 W
1	9 13.7	32.7 N	115.5 W
3	22 09.0	21 N	135 E
3	23 54.0	25 N?	106 W?
7	10 42.8	81 N	115 E
14	2 33	32.7 N	115.5 W
17	21 58.3	41 N	144 E
20	10 56.4	21.2 S	70.2 W
24*	1 05.5	18 S	169 E
24	6 42.2	18 S	169 E
25	7 53.4	18 S	169 E
25	23 10.6	18 S	169 E
26	15 36.2	18 S	169 E
27	18 16.9	18 S	169 E
30	8 55.1	18 S	169 E
31	0 23.4	81 N	115 E
		53 N	158 E
February 1	17 56.5	5 S	155 E
3	3 53.0	31 N	117 E
4	2 49.7	16 S	168 E
11	3 40.6	31 N	109 W
12	8 58.4	32.7 N	115.5 W
14	3 43.3	42.5 N	18 E
15	6 19.0	32.7 N	115.5 W
16*	1 35.2	47 N	155 E
16	8 36.5	47 N	155 E
16	11 52.3	47 N	155 E
16	13 13.7	47 N	155 E
18	23 56.5	5 N	126 E
21	12 24.9	2 N	133 E
22	19 54.1	27 N	144 E
24	4 13.2	11 N?	90 W?
25	17 41.2	37 S	177 E
26	2 04.7	18 S	175 W?
27	3 57.0?	42 N?	132 W?
28	14 08.0	29.5 S	70.5 W
March 3	1 05.1	7 S	121 E
3	16 49.8	46 N	155 E
6	1 33.4	27 N	43 W
7*	9 27.6	35.6 N	135.2 E
9	16 12.9	5 N?	83 W?
12	18 44.4	45 S	103 W
13	5 32.3	6 S	82 W
14	7 42.9	26 S	71 W
14	17 37.5	26 N	103 E
15	10 38.3	8 N?	82 W?
15	21 48.5	39 N	98 E
16	6 52.7	44 N	147 E
18	21 27.7	5 N?	122 E?
20	15 21.7	20 N?	157 W?
20	16 13.3	51 N	174 W
20	21 13.8	2 N	127 E

(continued)

Table IIIb. Earthquakes whose epicenters have been determined instrumentally. An asterisk (*) indicates that a provisional location has been published through SCIENCE SERVICE, Washington.

Date	Time of Origin G. M. T.	Epicenter Latitude		Epicenter Longitude	
1927	h. m.	°		°	
(continued)					
March 21	8 46.3	51	N	174	W
21	9 58.4	51	N	174	W
21	15 05.6	33	S	59	E
22	0 59.1	50	N	175	W
22	7 32.0	8	S?	154	E?
23	9 09.8?	45	S?	103	W?
25	3 46.5	56	N	36	W
25	12 55.0	55	N	158	W
26	2 28.1	20	S	175	W
28	7 56.3	46	N	126	W
30	7 55.5	62	N	150	W
30	14 10.5	37	S	111	W
31	21 08.5	35.6	N	135.2	E

International Seismological Centre

ACKNOWLEDGMENT OF EARTHQUAKE REGISTERS RECEIVED

International Seismological Centre

The U. S. Coast and Geodetic Survey gratefully acknowledges the receipt of reports of instrumental records of earthquakes from the observatories listed below. The issues listed have been received since the publication of the last seismological report, Serial No. 431.

This Bureau desires to exchange bulletins with all seismological institutions, and will give immediate attention to any station not receiving Coast and Geodetic Survey seismological reports.

Stations	Bulletins
Apia .....Special Bulletins and	April, December, 1928
Balboa Heights .....Special Bulletins and	August, 1928, February, 1929
Baku	July, December, 1927
Barcelona	January, May, 1928
Batavia	April, December, 1928
Beograd	August, 1928, February, 1929
Berkeley	October, 1927, March, 1928
Bombay	January, December, 1924
Budapest	January, December, 1928
Calcutta	January, December, 1926
Cambridge	April, October, 1928
Cartuja	June, 1928, February, 1929
Charlottesville (Seismograms)	September, 1928, May, 1929
Chicago (U. of C.) (Seismograms)	September, 1928, May, 1929
Chicago (Loyola University)	May, October, 1928
Cincinnati	May, July, 1928
Colaba	January, December, 1926
Denver	July, 1928, February, 1929
Ebro	April, June, 1928
Georgetown	March, 1928, April, 1929
Georgetown (Press Dispatches)	March, 1928, April, 1929
Gottingen	January, March, 1922
Guam	December, 1927, September, 1928
Hawaiian Volcano Obs'y. Mo. Bulletins to	May, 1928
Hamburg	April, 1928, March, 1929
Hong Kong	September, November, December, 1927, January, April-November, 1928
Honolulu (Seismograms)	September, 1928, April, 1929
Irkutsk	May, August, 1927
Ithaca	Year 1928, January, February, 1929
Kobe	April, May, June-October, November, December, 1928
Kučino	September, December, 1927
La Paz	July, December, 1928
La Plata	August, 1928, March, 1929
Leipzig	Years 1925, 1926, 1927
Lemberg	Year 1928
Lisbon (Annual Summary)	Year 1923
Makeevka	August, December, 1927
Manila	June, 1928, March, 1929
Melbourne	July, December, 1928
Mobile	January, March, 1925
New Orleans	May, December, 1927
Osaka	Year 1927
Ottawa	June, 1928, February, 1929
Perth	April, December, 1928
Parc Saint Maur	August, 1928, January, 1929

ACKNOWLEDGMENT OF EARTHQUAKE REGISTERS RECEIVED
(Continued)

Ponta Delgada	Year 1926
Port Au Prince	Year 1924
Pulkovo	August, December, 1927
Sydney	to August, 1926
St. Louis (Florissant Station)	August, 1928, March, 1929
St. Louis	June, July, 1928
Simla	Year 1926
Spokane	July, October, 1928
Stonyhurst	January, March, 1928
Strasbourg (National) Bull. Sism.	August, 1928, January, 1929
Strasbourg (University)	August, December, 1928
Strasbourg (International) Bull. Bibliog.	January, 1929
Strasbourg (International) Bull. Provis..	to March, 1929
Sucre	June, December, 1928
Sverdlovsk	May, December, 1927
Tananarive	April, October, 1928
Tachkent	August, December, 1927
Toledo, Spain	to August, 1928
Toronto	February, July, 1928
Tucson (Seismograms)	to May, 1929
Taunus	Year 1928
Uccle	January, June, 1928
Universität Konigberg	January, November, 1926
Upsala	October, 1920, December, 1923
Victoria	January, August, 1928
Wellington	March, 1927, to June, 1928
Zagreb	October, November, 1927, January, June, 1928
Zi-ka-wei	April, November, 1928
Zi-ka-wei	Notes de Seismologie No. 10

MISCELLANEOUS SEISMOLOGICAL ACTIVITY

GEODETIC WORK

In connection with seismological work during the first quarter a line of levels was carried from San Diego California, to Yuma, Arizona. This work will aid in the study of earthquake effects on ground levels.

HYDROGRAPHIC WORK

Vessels engaged in survey work are directed to make reports of visible or felt effects of earthquakes. No reports were received for the period covered by this report.

TIDAL OBSERVATIONS

Tidal records of the Bureau were examined for disturbances possibly due to submarine earthquakes. Nothing definite was noted.

International Seismological Centre

SEISMOLOGICAL REPORT

International Seismological Centre

APRIL, MAY, JUNE

1927

SERIAL NUMBER 468

U. S. DEPARTMENT OF COMMERCE

COAST AND GEODETIC SURVEY

U. S. DEPARTMENT OF COMMERCE
R. P. LAMONT, Secretary
COAST AND GEODETIC SURVEY
R. S. PATTON, Director

International Seismological Centre

Serial No. 468

SEISMOLOGICAL REPORT

APRIL, MAY, JUNE

1927

BY

FRANK NEUMANN

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1930

For sale by the Superintendent of Documents, Washington, D. C. - - - Price 10 cents

S E I S M O L O G I C A L R E P O R T

April, May, June, 1927.

By Frank Neumann, United States Coast and Geodetic Survey.

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International Seismological Centre

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INTRODUCTION

The quarterly seismological reports of the Coast and Geodetic Survey are prepared in the division of terrestrial magnetism and seismology under the direction of Commander N. H. Heck, hydrographic and geodetic engineer, chief of division. R. R. Bodle assisted in the preparation of this report.

Preceding reports. - Serials Nos. 328, 337, 363, 388, 395, 405, 424, 431 and 463 cover the seismological work of the Coast and Geodetic Survey from July, 1924, to March, 1927, inclusive. They are essentially a continuation in new form of the seismological reports of the U. S. Weather Bureau which first appeared in the Monthly Weather Review in 1914. All publications available for distribution may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C.

NONINSTRUMENTAL REPORTS - TABLE I

Table I is primarily a register of information bearing on the observed intensity of earthquake vibrations. It is the only practicable means by which the relative intensity of earthquake shocks may be properly recorded for statistical purposes or for investigating the distribution of intensity in the case of individual shocks.

The machinery for collecting this information is at present inadequate. Under these circumstances, only active cooperation on the part of the public will serve the purpose of the investigator satisfactorily. This is particularly true in sparsely populated regions. The Bureau, therefore, requests that anyone feeling or observing the effects of an earthquake shock send a report addressed to the Director, U. S. Coast and Geodetic Survey, Washington, D. C., for permanent abstracting in this publication. If forms are desired, they will be furnished upon request.

International Seismological Centre

The Rossi-Forel scale of intensities is used in tabulating the relative intensities of earthquake motions. Intensity evaluations in the fourth column of Table I are made in this office on the basis of the published abstract unless otherwise stated.

ROSSI-FOREL SCALE OF INTENSITIES

1. Microseismic shock. - Recorded by a single seismograph or by seismographs of the same model, but not by several seismographs of different kinds; the shock felt by an experienced observer.

2. Extremely feeble shock. - Recorded by several seismographs of different kinds; felt by a small number of persons at rest.

3. Very feeble shock. - Felt by several persons at rest; strong enough for the direction or duration to be appreciable.

4. Feeble shock. - Felt by persons in motion; disturbance of movable objects, doors, windows; cracking of ceilings.

5. Shock of moderate intensity. - Felt generally by everyone; disturbance of furniture, beds, etc.; ringing of some bells.

6. Fairly strong shock. - General awakening of those asleep; general ringing of bells; oscillation of chandeliers; stopping of clocks; visible agitation of trees and shrubs; some startled persons leaving their dwellings.

7. Strong shock. - Overthrow of movable objects; fall of plaster; ringing of church bells; general panic; without damage to buildings.

8. Very strong shock. - Fall of chimneys; cracks in the walls of buildings.

9. Extremely strong shock. - Partial or total destruction of some buildings.

10. Shock of extreme intensity. - Great disaster; ruins; disturbance of the strata, fissures in the ground; rock falls from mountains.

INSTRUMENTAL REPORTS - TABLE II

The analysis of seismograms of the Coast and Geodetic Survey observatories, the University of Chicago, and Harvard University is made at the Washington office of this Bureau. The only other reports published in full in this volume are from observatories which do not otherwise publish their results in permanent form.

The following observatories on the North American continent publish their own results, and inquiries in regard to them should be made directly to the institutions concerned or to the central stations:

United States: Georgetown, New York (Fordham), Berkeley and Mount Hamilton (both University of California), St. Louis, Denver, Mobile, Santa Clara, Spokane, New Orleans.

Canada: Halifax, Ottawa, Saskatoon, Toronto, Victoria, St. Anne. Halifax, Saskatoon and St. Anne are subsidiary stations of the Dominion Observatory at Ottawa where the results of the four stations are analysed and published.
Mexico and Central America: Tacubaya (Mexico City) and subsidiary stations.

According to the best information available, observatories not mentioned in this report have not yet published their results.

International Seismological Centre

QUARTERLY SUMMARY OF EARTHQUAKES - TABLE III

Table III is a chronological summary of earthquakes listed in Tables I and II. It includes only earthquakes recorded in or near the United States, its insular possessions, Alaska, Canada, and Mexico. All other earthquakes are intentionally omitted.

Local earthquakes in Hawaii and the Philippines and swarm types in California constitute problems for local study and are not included in this report. Local shocks in these regions are tabulated as a rule only when they are recorded at both local and distant observatories, or when reported as severe by local observers.

Table IIIa is a summary of earthquakes according to region. Table IIIb is a tabulation of epicenters determined almost wholly or in part from instrumental reports acknowledged at the end of this report. When epicenters from other sources are utilized, acknowledgment is made in Table III.

Computed epicenters are in every sense provisional. They are determined (1) to furnish other institutions and the public early information concerning earthquakes recorded at American observatories, or reported in the press, (2) to classify earthquakes according to region - Table IIIa, (3) to aid in the interpretation of other instrumental records, (4) to aid in appraising the performance of American seismological observatories, and (5) to locate and discuss purely domestic earthquakes. For final reports on epicenters readers are referred to the International Seismological Summary prepared at the University Observatory, Oxford, England. A table of epicenters is also published by the Dominion Observatory at Ottawa, Canada.

Table I. Non-instrumental earthquake reports.
April 1, 1927 to June 30, 1927.

International Seismological Centre

Earthquake Intensities (Abbreviated Rossi-Forel)

1. Felt only by an experienced observer, very faint.
2. Felt by a few persons at rest, faint.
3. Direction or duration appreciable, weak.
4. Felt by persons walking. Doors, etc., moved.
5. Felt by nearly everyone. Furniture moved.
6. Bells rung, pendulum clocks stopped. Alarm.
7. Fall of plaster, slight damage. Scare.
8. Fall of chimneys, walls cracked. Fright.
9. Some houses partly or wholly wrecked. Terror.
10. Buildings ruined, ground cracked. Panic.

The order of abstracting information in Source and Remarks column is:

1. Source.
2. Intensity.
3. Number of persons observing.
4. Number of persons alarmed.
5. Outside disturbances.
6. Inside disturbances.
7. Observed motion.
8. Number of shocks.
9. Sounds.
10. Topography and ground formation.

For further details see report for July, August, September, 1925.

Key to Abbreviations in Table I.

abr - abrupt
aft - after
bef - before
bldgs - buildings
bmp - bump;-ed;-ing
crk - crack;-ed;-ing
exp - explosive
fnt - faint
grd - gradual
h - houre
hls - hills
ld - loud
m - minutes
mi - miles
mvd - mov;-ed;-ing
mts - mountains
nr - nearly
obs - observ;-ed;-er
pln - plain
pop - popu.lation
sev - several
rkd - rocked
rkg - rocking
rky - rocky
rmb - rumbling
rpd - rapid
rtl - rattl;-ed;-ing
s - seconds
scr - scraping
sft - soft
shk - shaken, shook
sl - slight
swa - sway;-ed;-ing
thn - thunder;-ous;-ing
trm - trembl;-ed;-ing
tws - twisting
val - valley

"P" indicates a press report.

"WB" is a symbol for the U. S. Weather Bureau which cooperates actively in collecting earthquake information.

"BSSA" refers to the Bulletin of the Seismological Society of America.

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

o?o 11—9581

International Seismological Centre

DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
Apr.		CALIFORNIA		
5		Ventura	4	P. Three sl earthquakes at 5 m intervals shk houses, beds, etc.
		ALASKA		
8,9		Dutch Harbor		P. Apprehension as result of severe earthquake kept people awake.
		OREGON		
9	4 55	Baker	1	E. Fisher, WB. Obs by 1 person; 3 story brick YMCA bldg swa NS; 1 shock.
	8 30	do	1	See above.
		Cornucopia	5	L. Panter, WB. Felt by everybody; rkg and trm; N-S motion; 8 shocks: 5 h (2), 5:30 h, 7 h, 8:20 h (2), 10 h; 14 h; thn sounds; hilly.
	5 00	Halfway	5	P. Lodge meeting interrupted; residents awakened by later shocks; windows rtl.
	5 00	Newbridge	3?	P. Felt.
	5 00	Pine and Eagle Valleys.		P. 4 or 5 shocks felt at 5 h; 8 h, 9 or 10 h, 14 h.
	5 00	Richland	5	P. School entertainment interrupted; later shocks awakened residents; windows rtl.
	5 00	Sparta	3?	P. Felt.
		CALIFORNIA		
12	23 30	Santa Cruz		P. Sl earthquake recorded.
		PHILIPPINE ISLANDS		
13	1 34	Manila		P. Unusually prolonged.
	2 23	do		P. Unusually prolonged.
		CALIFORNIA		
16	2 48	Avalon	2	T.M. Polhamus, WB. Felt by sev; rpd rkg, E-W, 2-3 s.
	2 48	El Segundo	3	P. Extremely light; windows rtl, pictures shk, chandeliers swung.
	2 48	Long Beach	3	P. As above.
	2 50	Los Angeles	4	D.H. Merrill, WB. Felt by many; abr trm N-S with sl E-W motion; thn sound.
	2 48	do	4	P. Felt only by few in business district; 20 s; 2 shocks?, N-S movement; earthquake was light in force but of unusually long duration.
	2 48	Mount Wilson	4	L.H. Humason, WB. Felt by sev; abr trm; heaviest part 6 s followed by fnt tremors for 8 s; fnt rmb rtl with shock; mts.
		Ojai	3?	P. Felt slightly.

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

o?o 11—0581

International Seismological Centre

DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
Apr.		CALIFORNIA		
(16)	2 48	Redondo Beach		M.C. Chittenden. Duration 5 s, N-S.
	2 48	Santa Monica	4	P. Distinctly felt; houses, bldgs shk; windows, pictures rtl; 20 s duration.
	2 48	Sawtelle	4	P. As above.
		Venice	3	P. Rtl windows; shk doors, windows and chandeliers.
		ALASKA		
17	16 50	Kodiak		P. Severe earthquake of 30 s duration reported.
	16 50	Whale Island		B.C. Parker, WB. Earthquake reported.
		TENNESSEE		
18	10 30	Ridgley		P. Three shocks felt, two at 12:30.
		HAWAII		
30	1 10	Kohola, Hawaii	4	B.D. Bond. Felt by many; abr bmp, 4 s; ld noise before shocks.
		NORTH DAKOTA		
30	2 15	Hebron	2	P.S. Jungers. Felt by one; fairly rpd trm and rkg, mostly E-W; pictures mvd, hanging lights swung, plaster, table legs, etc., creaked; prairie, clay.
May		HAWAII		
1	00 04	Haina, Hawaii	4	L. Hino, WB. . Felt by part of pop; many alarmed; windows rtl; rpd trm, then bmp, then trm; 15 s; ld thn sounds; hls, rky.
		ALABAMA		
7	8 ?	Decatur	3	WB. Felt by many; trm; val.
	8 23	do	3	P. Felt in Decatur and environs.
	10 ?	Riverton	2	J.F. Long, WB. Felt by sev; windows rtl; grd trm, NW-SE; fnt rmb.
		ARKANSAS		
		Blytheville		P. Felt.
	8 28	Earle	4	C.B. O'Neill, WB. Rather severe 6 s; felt by many; observer awakened, noticed house shake, felt settling swa motion; doors, dishes rtl; chickens disturbed; abr trm; moderate ld thn sounds; val sft.
	8 30	Marked Tree	6	Chapman and Dewey Lumber Co., WB. Felt by 80 per cent, many positive of ground motion and scared; observer awakened; bldgs trees rkd to and fro; doors, chairs disturbed; rpd rkg; moderate ld thn sounds; val sft. Another shock at 2 h on May 7.

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

ero 11—9531

DATE	TIME G. M. T.	LOCALITY	INTENSITY	SOURCE AND REMARKS
1927	h. m.			
May		ARKANSAS		
(7)	8 20 to 8 35	North Jonesboro	6	P. Some brick chimneys tumbled down.
	8 25 or 8 30	Pocohantas	4	Benedictine Sisters, WB. Felt by many; grd rkg trm; 2 shocks, 7-8 s; fnt rmb sounds.
		ILLINOIS		
	8 31	Cairo	4	J.F. McGruder, WB. Felt by many; grd trm 2 s; pln sft.
		Carbondale		P. Felt.
		KENTUCKY		
		Fulton		P. Felt.
	8 35	Hickman	4	R. Barrett, WB. Felt by sev; observer awakened; abr trm; 2 shocks; hls rky.
	8 30	do	5	P. Almost every citizen awakened.
	7 55	Louisville	3	J.E. Eschrich, WB. Felt by two; observer awakened; bed trm noticeably; grd trm SW-NE.
		Mayfield		P. Felt.
	8	Murray	3	G.K. Shelton, WB. Felt by a few; very sl rpd trm; shocks at 8:00, 8:30, 8:37; val sft.
		Paducah	2	F.L. Brown, WB. Sl; felt by only a few.
		MISSOURI		
	8 30	Benton	4	E.R. Tirmenstein, WB. Felt by sev, observer awakened; grd trm; 3 short shocks; surface sounds observed by sev; hls.
	8 30	Campbell	4	J. King, WB. Felt by many, not by observer; some chairs rkd; grd swa; surface sound heard by many; pln clay.
	8 35	Caruthersville	4	J.T. Markey, WB. Felt by many, windows rtl; grd trm; 2 shocks 1 m apart; increasingly ld or whistling sound; pln sft.
		do		P. Felt.
	8 30	Morehouse	3	J.A. Spence, WB. Felt by sev; observer awakened from sleep; beds rkd, door, windows, silverware, pans rtl, telephone bells jingled; 2 shocks 2 m each; pln gumbo.
	9	New Madrid	4	J.G. Smith, WB. Felt by many; rpd rkg 2 s.
	8 31	Parma	3	H.W. Kendall, WB. Felt by sev, very few alarmed, thought it was blasting; street lights swa E to W; rpd trm swa; sounds heard by sev 4 m after, like distant thn.
		Poplar Bluff		P. Felt.
		Sikeston	2	R.B. Drummond, WB. Felt by sev; trm; pln sft.
		do		P. Felt.

International Seismological Centre

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

o?o 11—0581

International Seismological Centre

DATE	TIME G. M. T.	LOCALITY	INTENSITY	SOURCE AND REMARKS
1927	h. m.			
May		**MISSOURI**		
(7)		St. Louis		P. Recorded on instruments from 8:31 to 8:36.
		TENNESSEE		
	8 30	Clarksville	3	L.W. Hodgson, WB. Felt by sev; furniture rtl; trm few s.
		Covington		P. Felt.
		Dyersburg		P. Felt.
		Jackson		P. Felt.
	8 30	Memphis	5	J.W. Brist, WB. Felt by many, observer awakened, some alarmed; rpd rkg; surface and subterranean sounds heard by many; pln sft.
		do	5	P. Police headquarters beseiged with telephone calls; 2 shocks.
	8 30	Milan	3	J.H. Powell, WB. Felt by sev; rpd rkg NS; 2 shocks, 5 and 4 s duration; fnt sounds.
	8 30	Millington	4	N.L. Flourney, WB. Felt by sev, observer awakened; bldgs rkd; furniture disturbed; grd rkg; sounds aft, like distant roar of wind; pln.
		Paris		P. Felt.
		Ripley		P. Felt.
	8 30	Union City	3	S.D. Woosley, WB. Felt by quite a few; rkg swa; 2 shocks.
		do		P. Felt.
				Not felt at Paducah, Marion, Christian, Calhoun, Princeton, Cloverport, Rumsey, Benton, Morganfield, Ky.; Evansville, Ind.
		CALIFORNIA		
15	11 20	Ventura	3	BSSA. Distinct shock; windows crk.
16	14 52	Eureka	4	L.R. Jones, WB. Felt by many; light fixtures swung N-S; abr bmp, trm; 2 shocks; pln sandy.
	14 51	Scotia	4	W.G. Corbitt, WB. Felt by many, abr trm NE-SW; bldgs creaked; 2 shocks; val sandy.
		UTAH		
22	5 00	Richfield	3	S.R. Boswell, WB. Felt by few; rmb; val. (Possibly another shock at 6 h)
		CALIFORNIA		
28	17 38	Irvington	6	Mrs. J.D. Blacow. Felt by many; many alarmed, no panic; cans on shelves rtl; walls creaked; sudden shake, bldg jarred, then a shake and sort of smack and creak; 2 shocks blended into one; val.

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

o?o 11—0881

DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
May		CALIFORNIA		
(28)		Livermore	3	M.G. Callaghan, PM. Felt by sev; grd sl tremor; val gravel.
	17 38	Mare Island	3	Capt. T.J.J. See, USN. Felt by sev; bldg rtl; gentle swa; rocky.
	17 35	Mission San Jose	4	J.E. Rogers, PM. Felt by many; bldg rtl; trm; val.
	17 37	Niles	3	C.M. Kell, PM. Felt by sev indoors; rpd trm.
		Palo Alto	2	Mrs. S.D. Townley. Felt by very few; windows rtl; NS motion reported by one; typical earthquake sounds.
	17 30	San Francisco	3	W.W. Bradley. Felt by sev; few alarmed; 2 shocks, first rpd and like sharp vertical bmp; second grd swa; made ground.
	17 45	do	3	L.P. Raynor, C CS. Felt by many not in motion; table shk, windows rtl, beds mvd; abr bmp; one shock.
	17 38	do	4	WB. Felt by many; abr rkg; 2 shocks, 1 s each; SE-NW; very fnt rmb sound.
	17 38	do	4	P.C. Whitney, C GS. Felt by many; chandelier in custom house swa; grd rpd swa, 5 s; made ground.
	17 38	do		P. Sl earthquake lasting second or two felt.
	17 38	San Jose	6	E.S. Nichols, WB. Felt by many; many alarmed; goods on shelves tipped over; plaster disturbed slightly; 22-inch clock pendulum in Weather Bureau office stopped swinging; direction of swing ENE-WSW; mercurial barometer disturbed, telegraph wire between bldgs vibrated nearby vertically; abr bmp NE-SE, 2 shocks; val alluvial.
	17 38	do	5	I. Ball, PM. Few alarmed; plaster disturbed in one case; 2 shocks; val made ground.
				M.W. Allen, R. Johnson, H.A. Underhill, E.A. Hoffman, M.R. Rittenhug, N.K. Cushing, F.M. Schon, W. Miller, PM, and Suisson, PM, reported shocks not felt at Santa Rosa, Pt. Bonita Sta., Pt. Reyes Sta., Richmond, Oakland, Martinez, Southhampton Shoal, East Brother Island, Burlingame and Suisum , respectively.
		ALASKA		
31	20 09	Anchorage		M.E. Nichols, WB. Felt.
June		NEW JERSEY		
1	12 23	New Jersey coast		P. Three shocks observed along the New Jersey coast from Sandy Hook to Toms River; some chimneys destroyed, bricks fell; plaster shk, dishes etc. broken; 2d shock at 13:31, 3d at 13:40.

International Seismological Centre

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

o r o 11—0551

International Seismological Centre

DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
June		NEW JERSEY		
(1)	12 15	Adelphia	2	G.N. Iron, WB. Felt by sev; abr; pln.
	12 20	Asbury Park	7	E.W. McConnell, WB. Felt by all, a few alarmed; bottles on shelves toppled over, two chimneys knocked over 3 miles north; abr swa, N-S; ld thn roaring sounds; pln; sandy ground.
	12 20	do	6	P. Many persons rushed to streets in business and residence sections; newspaper office deluged with phone calls; steel bldgs shk; window panes rtl, huge rolls of news print in cellar of press bldg dislodged and rolled about; only 1 shock felt; 1 m duration; sounds like dull thuds and distant rolls of thunder.
	12 20	Barnegat		P. Felt.
		Belmar		P. Thought shock was an explosion.
		Butler		P. Felt.
		Cold Indian Springs	2	P. Dogs howled; no damage; one house reported shk.
		Deal	3?	P. Shake very pronounced.
		Fairhaven	5	P. Plaster shk from walls and ceilings of houses.
	12 20	Farmingdale	5	J.R. Allaire, PM. Felt by many; scales in post office rtl; G.N. Iron reported glass broken in bakery; grd trm; pln, sandy.
		do	4	P. Headquarters of state police shk as though by a passing train.
	12 20	Flatbush	3	C.A. Brassler. Felt very perceptibly; house rkd; windows, doors rtl.
	12 20	Fort Hancock	4	P. Disturbance first thought due to gust of high wind; bldgs shk; windows rtl; signal tower trm violently sev s; duration 1 m.
	12 21	Freehold	3	E.M. Gurns, WB. Felt by sev; abr bmp; moderate ld sounds like explosion; pln.
		do		P. Sl shock heard and felt.
	12 27	Highlands	4	P. Bldgs shk; W.U. tower vibrated violently 20 s, motion S-N.
		Jersey City	2	P. Reported felt by police; bldg shk; windows rtl; 1 m.
		Keyport	2	P. Bldg shk; window panes rtl; 1 m; reported not felt by police
	12 13	Kingston	3	A.L. Smith. Felt by few at rest; rpd trm 6-7 s; pln rky.
	12 30	Lakewood	2	O.L. Dickerson, WB. Felt by very few; grd trm; heavy rmb sounds.
		do		P. Slight shock.
	Approx. 12 15	Long Branch	7	P. Many people ran from homes and quite a few thought it an explosion; bricks dislodged from 3 chimneys in different parts of city; part of one ceiling fell; tobacco rack upset in store.
		do	6	W.D. Martin, Jr., WB. Felt by sev; badly crk wall, plaster thrown down, one chimney fell in northerly direction; abr bmp N-S; thn sounds.

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

o-o 11—9581

DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
June		NEW JERSEY		
(1)		Monmouth Beach	3	P. Felt by Coast guardsman; one resident claimed his house "just rolled".
		Oakhurst	4	P. Village aroused and bldgs shk.
		Oceanport	4	P. Residents became anxious.
		Ocean Grove	5	P. Bureau toppled over, bottles tumbled from shelves in drug store.
	12 30	Old Bridge	3	H.L. Dieker, WB. Felt by sev; windows rtl; grd rmb sounds; low lands, sandy.
		Red Bank	4	P. Police headquarters rkd dangerously sev s; brick and wood construction.
	12 27	Sandy Hook	4	WB. Felt by many, sounds heard by all; rpd swa; sounds like distant prolonged explosion; level, sandy.
		do		P. Shock felt.
		Sea Bright		P. Bldgs shk.
		South Amboy		P. Felt.
		Toms River		P. Shock felt.
		West Long Branch	5	P. People rushed out of homes; table mvd sl; marble slab on porch mvd sev inches.
		NEW YORK		
		Scarsdale, White Plains, and other towns in Westchester Co.		P. Numerous reports of broken crockery and fallen plaster; at Scarsdale ground trm as though due to a passing truck.
		CALIFORNIA		
9	5 15	Tustin	4	The Irvine Co. Felt by many; grd rkg N-S; 3 s; val.
	5 17	Yorba Linda	3	P.J. Ton, WB. Felt by sev; picture on south wall swa; abr bmp; fnt sounds; val adobe.
		VIRGINIA		
10	7 16	Charlottesville	3	A.J. Weed. Felt by sev; dishes rtl in one home; trm like a train passing
		do	4	P. Earthquake severe enough to awaken many people.
	7 17	Richmond	3	P. Many residents routed from bed; reported by railroad officials to have been felt 50 miles west like explosion; houses rkd; windows rtl.
		PORTO RICO		
14	9 00	Barros	3	O. Santiago, WB. Felt by many; rpd bmp; 2 shocks; val clay.
	9 00	Comerio Falls	4	P R R L&P Co. Felt by 60 per cent of pop; grd trm; moderate ld bmp sounds; hls rocky.
	9 15	Humacao	3	A. Roig, WB. Grd rkg, E-W, 15 s; plain, sandy.

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TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

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International Seismological Centre

DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
June		PORTO RICO		
(14)	9 00	Mayaguez	4	A. Arroyo, WB. Felt by many; general alarm; grd swa, N-S; fnt sounds; pln.
	9 00	Rio Piedras	3	L. Lord, WB. Felt by many; abr trm N-S; objects rtl; pln clay.
	9 00	San Juan	3	G.A. Harriman, WB. Felt by many; abr trm, N-S, 6-7 s.
	9 00	Utuado	4	Martinez and Co., WB. Felt by many; general alarm; grd swa; 2 shocks; 1 strong and 1 small; mts rky.
		ALABAMA		
16	13 00	Madison and Jackson Counties		P. Shock felt from Gurley east to Stevenson and over a 60 mi area.
	13 00	Bridgeport		P. Felt.
	13 00	Dutton		P. Shock and noise heavy.
	- --	Gurley	5	P. Residents of small houses rushed into streets; shock accompanied by reverberating roar and a series of staccato explosions lasting 30 s.
	- --	Huntsville		P. Felt.
	13 02	Scottsboro	5	J.A. Bird, WB. Felt by all, many alarmed; dishes rtl; abr trm; roaring sounds.
	13 00	do	5	P. People fled to streets; earth's surface quivered for 30 s; bldgs rkd; windows shk and rtl; started with low rumble which mounted to deep and deafening roar.
	- --	Stevenson	3?	P. Felt a very pronounced shock.
	- --	Woodville		P. Pronounced shock; people left houses. WB office, R.L. Moore, WB, S. Moore, WB, report quakes not felt at Birmingham, Bridgeport and Tuscumbia respectively.
		CALIFORNIA		
24	0 53	San Jose	3	E.S. Nichols, WB. Felt by few; hanging barometer swung sl; abr jar; val, alluvial.
		ALASKA		
30	5 50	Haines		B.A. Barnett, WB. Sl earthquake.

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Contributors of Press Clippings and Dispatches not mentioned in Table I.

F. A. Tondorf
O. S. Hill
State Department

Telegraphic press dispatches are received through the courtesy of Rev. F. A. Tondorf, S.J., Director of the Georgetown University Seismological Observatory.

Table Ia. Earthquakes of intensity V and over (Rossi-Forel Scale).

Date			Time	Locality	Epicenter		Area	Intensity
Year	Mo.	Day	G.M.T.		Lat.	Long.	sq. mi.	
			h. m.		°	°		
1927	Apr.	9	4 55	Oregon	45.0 N	117.3 W	750	5
	May	7	8 25	Arkansas and Central States	35.7 N	90.6 W	350000	6
	May	28	17 38	California	37.3 N	121.8 W	1500	6
	June	1	12 23	New Jersey	40.3 N	74.0 W	3000	7
	June	16	13 00	Alabama	34.7 N	86.2 W	750	5

Table II. Instrumental Reports.

International Seismological Centre

NOTATION.

Beginning July 1, 1925, the notations used in instrumental reports of the Coast and Geodetic Survey will be those adopted by the International Seismological Association with modifications suggested by Rev. James B. Macelwane, S.J., and others.

1. Character of earthquake recorded:

I. Slight. II. Moderately strong. III. Violent.

d Local shock (origin less than 100 kilometers distant).

v Near shock (origin from 100 to 1000 kilometers distant).

r Distant shock (origin from 1000 to 5000 kilometers distant).

u Very distant shock or teleseism (origin more than 5000 kilometers distant).

2. Wave groups or phases:

P Normal first preliminary tremors; longitudinal waves that have passed below the continental layer.

$\overline{P}$ Individual or upper first preliminary tremors whose path lies wholly in the continental layer.

P' Longitudinal waves that have traversed the earth's core.

$R_1\overline{P}$ Upper first preliminary tremors reflected from the lower boundary of the continental layer.

$R_3\overline{P}$ Upper first preliminary tremors reflected from the upper surface of the continental layer.

PR_1 Longitudinal waves reflected once at the earth's surface.

PR_2 Longitudinal waves reflected twice at the earth's surface.

PR_3 Longitudinal waves reflected three times at the earth's surface.

P_cP Longitudinal waves reflected from the outer surface of the earth's core.

S Normal second preliminary tremors; transverse waves that have passed below the continental layer.

$\overline{S}$ Individual or upper second preliminary tremors whose path lies entirely in the continental layer.

$R_1\overline{S}$ Upper second preliminary tremors reflected from the lower boundary of the continental layer.

$R_3\overline{S}$ Upper second preliminary tremors reflected from the upper surface of the continental layer.

PS Waves transformed from longitudinal to transverse oscillation, or vice versa, through one reflection at the earth's surface being either PS or SP in true character.

Table II. Instrumental Reports.

NOTATION

International Seismological Centre

2. Wave groups or phases: (cont'd.)

PPS	Waves which have traversed two legs of their twice reflected paths as longitudinal and one leg as transverse waves, being PPS, PSP, or SPP in true character since these all have the same travel time.
SR_1	Normal transverse waves reflected once at the earth's surface.
SR_2	Normal transverse waves reflected twice at the earth's surface.
SR_3	Normal transverse waves reflected three times at the earth's surface.
S_cS	Normal transverse waves reflected from the outer surface of the earth's core.
$\overline{S_cP_cP}$	Waves which start with transverse vibration but on refraction into the core are changed to longitudinal, or which start as longitudinal and are refracted out as transverse.
$\overline{S_cP_cS}$	Waves which traverse the mantle at both ends with transverse vibration but are refracted through the core with longitudinal oscillation.
$\overline{S_cP_c}\overline{P_cS}$	Waves which traverse the mantle with transverse vibration, are refracted through core as longitudinal waves, and are reflected internally on its farther side.
L	Long waves of irregular form at the beginning of the surface phase or "main phase". See supplementary note.
M	Shorter and more regular waves of large amplitude in the surface group which travel more slowly than the L waves.
M_1, M_2, etc.	Individual waves of relatively great amplitude in the surface phase and usually in the M group.
C	Waves of the tail or end portion.
W_2	Surface waves traveling around the major arc to the station.
W_3	Surface waves returning to the station after a complete circuit of the globe.
F	End of discernible movement.

3. Nature of the Motion: (See also Supplementary Notations on next page.)

i	Impulsive and sharply defined beginning of a phase.
e	Poorly defined emergence of a phase.
A	Either (a) amplitude of earth motion measured from the position of equilibrium in microns (1 micron 1/1000 mm.), toward the north, east, or zenith, - toward the south, west, or nadir; or (b), when so marked, the trace amplitude or half range of movement of the pen on the record measured from the median line in millimeters.

Table II. Instrumental Reports.

NOTATION

3. Nature of the Motion: (cont'd.)

A_E E-W component of A.

A_N N-S component of A.

A_Z Vertical component of A.

T Period of wave.

4. Deduced Data:

O Time of earthquake at epicenter (O_1 according to Klotz's tables; O_2 according to Macelwane's tables).

Arcual distance from the station to the epicenter. (Subscript references same as for O.)

5. Constants of Seismograph:

T_o Free or undamped period of the seismograph.

V Static magnification.

ɬ Ratio of successive damped amplitudes.

r Half width of zone within which friction will completely arrest the recording pen.

h Altitude of observatory above sea level.

Supplementary Notations.

Lq Surface (Love) waves of transverse type in which the earth particle oscillates in the horizontal plane perpendicular to the direction of propagation.

Lr Surface (Rayleigh) waves in which the earth particle describes a circuitous path in a vertical plane in the line of propagation. The horizontal motion in the line of propagation is approximately two-thirds of the vertical motion.

In this report phases are designated as above either (1) when the amplitudes on the two horizontal components point definitely to transverse or longitudinal motion, or (2) more particularly in the case of Honolulu, when the travel times correspond to established velocities over Pacific paths, approximately 4.5 km. per second for Lq and 4.0 km. per second for Lr. Seismographic records indicate the existence of several groups of waves of each type.

? An interrogation mark (?) before a phase indicates that the existence of a new phase is questioned. A similar mark after a phase indicates that the phase interpretation is questioned.

f An interference. n an emergence of nodal character.

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Table II. Instrumental Reports.

The Panama Canal, 17
R. Z. Kirkpatrick, Chief Hydrographer, In Charge.

BALBOA HEIGHTS, Canal Zone.

Lat. 8° 57.'6 N. Long. 79° 33.'5 W. h, 36 m.

Instrument	Component	Mass	T_o	V		
Bosch-Omori	EW	100 kg.	20 s.	35		
do	NS	100 kg.	do	35		

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Apr. 14	P_E	6 28 54				
	P_N	6 28 56				
	S_E	6 35 17				
	S_N	6 35 11				
	L_{1N}	6 35 26				
	M_{1N}	6 35 33	20		56*	
	L_{1E}	6 35 30				
	M_{1E}	6 35 42	20	29*		
	F	7 11 30				
May 22	P_N	22 50 08				Time marks missing. EW record lost.
	S_N	23 03 28				
	L_{1N}	23 20 40				
	M_{1N}	23 24 00	20		7*	
	F	24 34				
June 3	P_E	7 29 45				
	P_N	7 29 40				
	S_E	7 30 11				
	S_N	7 30 06				
	L_{1E}	7 31 10				
	M_{1E}	7 31 12	20	6*		
	L_{1N}	7 31 07				
	M_{1N}	7 31 01	20		7*	
	F	7 47 10				

* indicates trace amplitude in one-tenth millimeters.

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Table II. Instrumental Reports. Harvard Seismograph Station.

CAMBRIDGE, Massachusetts. K. F. Mather, In Charge.

Lat. 42° 22.'6 N. Long. 71° 07.'0 W. h, 5 m.

Instrument	Component	Mass	T_o	V		
Bosch-Omori	EW, 3°S	100 kg.	10 s.	80		
do	NS, 3°E	100 kg.	15 s.	50		

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Apr. 14	iP_N	6 35 17	9		13*	Record poorly defined on EW.
	ePR_{1N}	6 38 09	8		7*	
	S_N	6 44 30	12		30*	
	F	7 28				
Apr. 16	e_N	8 47 16				
	M_{1E}	8 54.0	18	6*		
	M_{1N}	8 54 24	17		15*	
	F	9 26				
May 9	e_N	20 18 18	12		5*	
	eS_E	20 20 08	9	8*		
	eL_{1E}	20 22 22	20	10*		
	eL_{1N}	20 22 04	8		6*	
	F	20 39				
May 22	eP_N?	22 50 32	6		5*	
	e_N	22 55 36	10		5*	
	e_N	22 57 12	11		23*	
	e_E	17 58.0	6	4*		
	e_N	22 59 44	21		60*	
	eS_E?	18 03 40	14	5*		
	eS_N?	23 04 54	36		44*	
	e_E	18 10 26	20	12*		
	eL_{1E}	18 12.7				
	e_N	23 12 38	16		60*	
	e_N	23 22 00	20		170*	
	M_{1E}	18 40.9	12	152*		
	eL_{1N}	23 30 48				
	M_{1N}	23 39.0	16			
	F	20.2				
June 3	P'_N	7 32 04	6		1*	
	iPR_{1E}	7 35 16	4	3*		
	iPR_{1N}	7 35 28	7		8*	
	iPR_{2EN}	7 41 20	8	2*	9*	
	$eP3_N$	7 45 26	9		5*	
	e_N	7 47 18	10		11*	
	e_E	7 48.2	8	4*		
	eSR_{1N}	7 52 56	10		13*	
	eSR_{2E}	7 58 22	20	3*		
	iSR_{2N}	7 59 32	16		20*	
	eL_{1E}	8 16.0				
	M_{1E}	8 20.0	34	8*		
	eL_{1N}	8 12.0				
	M_{1N}	8 21.2	32		18*	
	F	9.2				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

CHELTENHAM, Maryland. G. Hartnell, In Charge.

Lat. 38° 44' N. Long. 76° 05.'5 W. h, 72 m.

Instrument	Compo-nent	Mass	T_0	V		
Bosch-Omori	EW	10 kg.	15 s.	10	Undamped	
do	NS	do	15 s.	10	do	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Apr. 14	e_E	6 29 28	4	1*		
	e_N	6 34 47				
	e_N	6 35 16	3		3*	
	$?e_N$	6 36 00				
	e_N	6 38 09				
	e_E	6 38 32				
	eL_E	6 39 24	11	12*		
	eL_N	6 43 56	8		5*	
	F	7.1				
Apr. 16	eL_E?	8 49 45				Nothing on NS.
	F	9.7				
May 22	$e\overline{S_c P_c S}_N$	22 57 48				No record on EW.
	ePS_N	23 00 32	8		10*	
	eSR_{1N}	23 06 16	28		5*	
	eL_N	23 21 15				
	eL_N	23 30 18				
	eL_N	23 35 28				
	M_{1N}	23 36 52	18		25*	
	M_{2N}	23 38 28	16		30*	
	F	0.4				
						No earthquakes recorded during June.

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U. S. Weather Bureau.

Lat. 41° 47' N. Long. 87° 37' W. h. 180 m.

Instrument	Compo-nent	Mass	T_o	V	ℓ	
Milne-Shaw	EW	1 lb.	12 s.	150	20:1	
do	NS	1 lb.	12 s.	150	20:1	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
Apr. 1	?e_N	0 40 17	3		1*	
	?e_E	0 40 08	3	1*		
	eLq_N	0 40.6	10		2	
	eLq_E	0 40.9	9	2		
	F	0 45.0				
Apr. 1	e_E	20 29 30	10	7		
	e_N	20 29.6				
	i_E	20 30 13	8		3	
	iS_N?	20 30 44	11		9	
	iS_E?	20 30 47	9	5		
	e_E	20 32.4	10	4		
	e_N	20 33.6	11		4	
	F	21.3				
Apr. 5	e_N	0 56.2				not Disturbance may be seismic.
Apr. 6	eL_N	19 09 09	12		1	EW lost in overlap.
	F	19 10.4				
Apr. 9	eLq_N	19 22.6	12		1	Activity very weak. Apparently nothing on EW.
	eLr_N	19 29.7				
	F	19 33				
Apr. 14	O_1	6 23 36				Δ_1= 8200 km.
	O_2	6 23 50				Δ_2= 7970 km.
	iP_{1N}	6 35 09	7		11	No outstanding maximum in I
	iP_E	6 35 10	7	3		on NS component.
	iP_{2N}	6 35 41	6		10	
	iP_{3N}	6 35 55	6		14	
	ePR_{1N}?	6 37 43				
	ePR_{2N}?	6 40 33				
	iS_N	6 44 39	10		29	
	iS_E	6 44 37	12	23		
	i_E	6 45 30	10	71		
	i_E	6 46 07	11	37		
	e_E	6 45 15	12		32	
	iSR_{1E}	6 50 23	16	32		
	eLq_E	6 55.9	20,50			
	M_{1E}	6 57.8	24	206		
	eLr_N	7 00.4	47		140	
	F	8.5				
Apr. 16	?eP_E	8 25.0				NS record lost.
	iS_E	8 33 04	10	4		
	eSR_{1E}	8 37.6	18	6		

(continued)

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U.S. Weather Bureau.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
Apr. 16		(continued)				
	eL_E	8 43.1	30	39		
	e_E	8 46.6	20	37		
	$?e_E$	8 51.3	16			
	M_{1E}	8 55.3	15	40		
	F	10.3				
Apr. 16	eL_E?	10 37.6	20	8		Probably an aftershock. NS record lost.
	F	10 47				
Apr. 19	$?eL_N$?	20 26.8				Seismic origin questionable.
	$?eL_E$?	20 30.0				
Apr. 25	$?S_E$	5 41.4				
	eL_N	5 45.1	10		2	
	L_E	5 45.3				
	M_{1E}	5 47.5	8	1		
	F	5 50				
Apr. 27	O_1	13 56 46				$\Delta_1 = 3030$ km.
	O_2	13 56 31				$\Delta_2 = 3190$ km.
	eP_N	14 02 45	10		1*	
	iS_E	14 07 28	10	3		
	S_N	14 07 30	10		4	
	F	14.6				
Apr. 27	eP_N	21 58.8				
	S_N	22 03 20	7		1	
	eS_E?	22 03.3				
	F	22 29				
Apr. 29	eL_E	11 43.8	12	1*		
	eL_N	11 44.5				
	F	11 50				
Apr. 30	$?SR_{1E}$	14 34 43				Weak activity. NS record lost.
	eL_E	14 43.7				
	F	15.3				
May 7	iP_E	8 34 07				Local; felt in Arkansas, Illinois, Kentucky, Missouri, and Tennessee.
	iP_N	8 34 08				
	M_{1N}	8 34 10	1		3	
	M_{1E}	8 34 11	1	6		
	F	8 36.0				
May 7	eL_N	22 09.9				
	M_{1N}	22 11.0	10		4	
	eL_E	22 09.9				
	M_{1E}	22 11.0	12	4		
	e_E	22 12.7				
	M_{2E}	22 13.0	10	3		
	F	22 24.3				
May 9	S_N	20 16.6	10		8	
	eS_E	20 16.6	12	5		
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U.S. Weather Bureau.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
May 9		(continued)				
	eL_E	20 20.6				
	M_{1E}	20 24.6	20	20		
	F	21 16.3				
May 13 to 14	eS_E?	23 38.9	13	1		Weak activity on both components.
	e_N?	24 01.9				
	eL_E	24 14.4	20	2		
	F	24 40.4				
May 19	eS_E?	5 39.6	6	2		
	?eS_N	5 39.7				
	eSR_{1E}	5 42 10	18	8		
	eL_N	5 46.9	12		4	
	F	6 09.5				
May 21	?eS_N	17 19.1				Record on EW masked by overlap.
	F	17 32				
May 22	?e_N	2 04.7				Weak activity on both components.
	e_E	2 04.0				
	eS_E?	2 04.9				
	F	2 18.1				
May 22	O_1	22 32 54				$\Delta_1 = 10730$ km.
	O_2	22 32 47				$\Delta_2 = 10844$ km.
	eP_E	22 46 30	5	1		
	P_N	22 46 31	14		5	
	PR_{1N}	22 50 39	10		8	
	PR_{1E}	22 50 39	15	6		
	PR_{2N}	22 52 33	8		9	
	PR_{3N}	22 54 25	16		11	
	$\overline{1S_cP_cS_N}$	22 57 14	14		48	
	$\overline{S_cP_cS_E}$	22 57 15	10	8		
	eS_E	22 58.0	20	37		
	PS_N	22 59 35	22		14	
	PS_E	22 59 51	20	19		
	SR_{1E}	23 04 35	26	80		
	SR_{1N}	23 04 59	20		38	
	e_N	23 05 39	28		253	
	SR_{2E}	23 08 39	20	39		
	eSR_{2N}	23 08.8	18		46	
	SR_{3N}	23 12 49	18		88	
	Lq_E	23 14.6	75	59*		
	Lr_E	23 20.0	40	846		
	L_E	23 25.2	20			
	M_{1E}	23 27.7	24	833		
	L_N	23 20.1	35			
	M_{1N}	23 28.2	24			
	M_{2N}	23 32.0	22		523	
	F	26.7				
May 31	eP_N?	13 07.4				Weak activity on both components.
	S_N?	13 12 25				
	eSR_1, L_E	13 14.5				
	eL_E	13 19.4				
	F	13 30				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U.S. Weather Bureau.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
June 3	P'_E	7 31 22	7	1*		
	P'_N	7 31 23	6		1*	
	ePR_{1E}	7 33 36	8	5		
	ePR_{1N}	7 33 42	7		3	
	$\overline{iS_cP_cP}$ E	7 34 36	6	16		
	$\overline{iS_cP_cP}$ N	7 34 39	6		10	
	i_E	7 35 15	5	14		
	i_N	7 35 17	6		11	
	$\overline{S_cP_cS}_E$	7 38 17	10	7		
	$\overline{S_cP_cS}_N$	7 38 22	9		5	
	$i\overline{S_cP_cP_cS}_N$	7 40 18	9		8	
	$i\overline{S_cP_cP_cS}_E$	7 40 23	8	11		
	$i\overline{PS_cP_cS}_N$	7 43 28	7		9	
	$i\overline{PS_cP_cS}_E$	7 43 30	9	11		
	ePS_N	7 43 42	18		24	
	ePS_E	7 43.8	30	106		
	eSR_{1E}	7 50.1	25	88		
	eSR_{1N}	7 50.3	13		31	
	iSR_{2E}	7 55 54	18	56		
	iSR_{2N}	7 55 59	17		22	
	eLQ_N	8 05.2	20		20	
	LQ_N	8 08 09	38			
	M_{1N}	8 16.0	29		120	
	LF_E	8 14.1				
	M_{1E}	8 14.4	35	294		
	F	10.1				
June 6	e_N	19 21.2				NS record very weak.
	ePS_E	18 53.3				
	eL_E	19 18.2	17	3		
	eL_E	19 31.7	16	3		
	F	20.1				
June 10	ePR_{1N}	17 18.2	10		1*	
	eSR_1, L_E	17 26.5	10			
	M_{1E}	17 35.0	20	10		
	eL_N	17 32.3	20		10	
	F	17.9				
June 11	e_N	8 14.0				
	e_E	8 14.2				
	F	8 24				
June 14	eL_E	18 32.4	20	6		Nothing on NS.
	F	19.0				
June 18	e_N	10 25.8				Weak activities.
	eL_E	10 32.8				
	eL_N	10 36.1				
	F	10 50				
June 19	$?P_E$	0 35 08				
	S_E	0 40 46				
	eL_E	0 46.5				
	M_{1E}	0 48.8	17	6		

(continued)

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U.S. Weather Bureau.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
June 19		(continued)				
	eI_N	0 46.6				
	M_{1N}	0 48.9	15		6	
	F	1.0				
June 19	e_E	16 39.3				
	e_N	16 40.2				
	eI_N	16 41.0				
	M_{1N}	16 41 26	14		4	
	eL_E	16 41.0				
	M_{1E}	16 41.4	11	3		
	F	16 48				
June 26	eL_E	12 01.7	20	6		
	eL_N	12 03.3	20		4	
	eL_N	12 09.3	15		2	
	eL_E	12 09.6	14	4		
	F	12 21				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. Weather Bureau, Philippine Islands.

CUAM, Marianne Islands. W. W. Rowley, In Charge.

Lat. 13° 28.'3 Long. 144° 44.'9 E. h, 5 m.

Instrument	Compo-nent	Mass				
Wiechert inverted pendulum	EW	180 kg.				

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Apr. 5	e	9 17 30				EW vibration.
6	e	8 47 30				NS "
6	e	17 13 00				NS "
11	e	22 39 10				EW "
13	e	2 12 20				NS "
13	e	14 25 15				EW "
15	e	11 45 00				EW "
17	e	1 39 30				NS "
17	e	17 27 00				EW "
17	e	21 26 00				NS "
18	e	15 22 00				EW "
24	e	15 08 00				NS "
May 1	e	19 32 45				EW vibration
2	e	12 59 55				NS "
12	e	4 52 58				NS "
17	e	8 50 30				EW "
23	e	8 39 30				EW "
June 3	e	17 15 50				EW vibration.
8	e	20 44 00				EW "
16	e	14 34 35				EW "
18	e	3 26 15				NS "
18	e	4 56 40				NS "
18	e	10 52 00				EW "
19	e	11 59 50				EW "
29	e	12 08 10				NS "

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

HONOLULU (University), Hawaii. J. H. Peters, In Charge.

Lat. 21° 18.'0 N. Long. 157° 49.'3 W. h, 15 m.

Instrument	Compo-nent	Mass	T_o	V	ϵ	Sensitivity
Milne-Shaw	EW	1 lb.	12.0 s.	150	about	23.5 mm.
do	NS	1 lb.	12.0 s.	150	20:1	28.8 mm.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
Apr. 1	O_1	19 06 20				Δ_1 = 4380 km.
	O_2	19 06 10				Δ_2 = 4533 km.
	iP_N	19 14 06	6		31	
	iP_E	19 14 06				
	?eP_{1N}	19 15 18				
	iS_E	19 20 15	9	50		
	eS_N	19 20 19	8		23	
	e_E?	19 23.3				
	eLq_E	19 27.0				
	M_{1E}	19 27.9	10	37		
	eL_N	19 27.7				
	M_{1N}	19 28.0	10		43	
	F	19 57				
Apr. 13	eL_E	14 33.0	16	7		Apparently no activity on NS component.
	F	14 40				
Apr. 14	?ePR_{1E}	6 42.0				
	ePR_{1N}	6 42.5				
	e$S_cP_cS_N$	6 48.3	13		14	
	e$S_cP_cS_E$	6 48.5	16	55		
	eS_E	6 50.2	30	9		
	ePS_N	6 51.3	20		27	
	e_E	6 55.1				
	eLq_N	7 05.0	20		27	
	eLq_E	7 05.7	15	23		
	Lr_E	7 09.2				
	M_{1E}	7 10.8	20	49		
	F	8.1				
Apr. 16	eS_N	8 27.0	10		9	
	eLq_N	8 29.0	16		25	
	Lq_E	8 29.0	13			
	M_{1E}	8 30.0	12	10		
	eLq_N	8 29.8	13			
	M_{1N}	8 31.0	10		46	
	eLq_E	8 30.6	10			
	M_{2E}	8 31.2	10	126		
	F	9.8				
Apr. 17	iP_N	4 24 21	1		35*	Local.
	iP_E	4 24 23	1	15*		
	F	4 25.7				
Apr. 18	eL_N	14 31.9	7		9	

(continued)

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

HONOLULU (University), Hawaii. J. H. Peters, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
Apr. 18		(continued)				
	eL_E	14 32.0	7	7		
	eL_N	14 34.0	7			
	M_{1N}	14 34.9	6		7	
	eL_E	14 33.0	7	9		
	eL_E	14 34.0	6	8		
	F	14 38				
Apr. 19	eS_N	17 51.3	10		7	
	eLr_N	18 03.5	8		7	
	eL_E	18 07.7	19	7		
	eL_E	18 15.9	13			
	M_{1E}	18 16.6	20	14		
	F	18 27				
Apr. 21	eL_E	11 57.0				No apparent activity on NS component.
	F	12 04				
Apr. 27	eS_E?	19 33.4	12	11		Weak activity on NS component.
	eL_N	18 43.7				
	eL_E	19 42.2	20	27		
	F	19 54				
May 2	?e_N	13 03.0				Doubtful activity; very weak.
	?e_E	13 01.0				
	F	13 08.0				
May 3	eS_N	13 58.5				
	eS_E	13 58.5	7	1		
	eL_N	14 08.6	13		5	
	eL_E	14 07.9	10			
	?eL_E	14 17.2				
	F	14 25				
May 9	eS_E	20 24.5				No apparent activity on NS component.
	eLr_E	20 34.6				
	F	20 42				
May 13	eSR, L_N?	23 35.0	12		12	
	e_E	23 35.0				
	F	23 45				
May 16	eS_E	12 18 20	16	16		
	e_E	12 26.0				
	eLq_N	12 27.3	13		18	
	eLr_E	12 28.7				
	M_{1E}	12 31.5	18	31		
	eLr_N	12 29.2	10		13	
	M_{1N}	12 31.5	11		12	
	F	12 42				
May 19	eL_E	6 00.5				
	M_{1E}	6 02.2	8	8		
	eL_N	6 01.0				
	M_{1N}	6 04.1	9		9	
	F	6 27				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

HONOLULU (University), Hawaii. J. H. Peters, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
May 21	S_N	17 08 26	8		12	No outstanding maximum in L waves on EW.
	iS_E	17 08 26	8	22		
	e_N	17 10 00	9		10	
	eSR_{1E}	17 10 57	7	14		
	eLq_N	17 11 40				
	M_{1N}	17 11 48	7		15	
	eLq_E	17 12.0	18	33		
	e_N	17 12.1				
	F	17 23				
May 22	iP_N	21 16 11				Local shock. Record lost on EW.
	M_N	21 16 12	1		50*	
	F	21 17.7				
May 22	P_N	22 45 23	10?		26*	Record on EW lost until change of paper at $0^h\ 05^m$ on May 23d.
	$?e_N$	22 48.2	10		17	
	e_N	22 45.5	20			
	iS_N	22 46 00	16		145	
	iSR_N	23 01 14	23		547	
	iLq_N	23 08 00	20		241	
	Lr_N	23 10 48	27			
	M_{1N}	23 13.7	22		717	
	F	02.0				
June 2	iP_N	4 27 36				Local shock.
	iP_E	4 27 38				
	M_{1N}	4 27 37			30*	
	M_{1E}	4 27 39		25*		
	F	4 28.5				
June 3	O_1	7 12 15				Δ_1= 8320 km.
	O_2	7 12 24				Δ_2= 8140 km.
	P_N	7 23 56	3		37	
	iP_E	7 23 53	2	40		
	iPR_{1E}	7 26 56	7	20		
	iPR_{2E}	7 28 55	8	22		
	$?e_N$	7 26.8	10		14	
	iS_N	7 33 30	7		47	
	iS_E	7 33 29	8	136		
	$iPS_N?$	7 33 53	10		121	
	fL_{qE}	7 41.7				
	Lq_N	7 42 56				
	M_{1N}	7 44.0	14		164	
	iLr_E	7 47 30	13			
	M_{1E}	7 48.8	30	882		
	Lr_E	7 58.5				
	F	9.1				
June 6	eS_E	12 45.6	6	6		Weak activity on both components.
	$?eL_E$	12 54.0				
	$?eL_N$	12 54.4				
	F	13.1				
June 6	e_E	18 40.6				
	eS_N	18 41.7	10		5	

(continued)

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

HONOLULU (University), Hawaii. J. H. Peters, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	μ	μ	
June 6		(continued)				
	?e$_E$	18 49.5	11	6		
	eL$_N$	18 54.0	20		11	
	F	19 00				
June 7	e$_E$	15 28.6				Weak activity.
	eL$_N$	15 32.0	6		4	
	F	15 37				
June 11	S$_N$	2 53.5				Trace only.
	S$_E$	2 53.5	6	3		
	F	2 55.0				
June 14	eL$_E$	17 59.0	22			
	M$_{1E}$	18 02.0	20	25		
	eL$_N$	17 59.5	25			
	M$_{1N}$	18 02.0	22		37	
	F	18 10				
June 17	eL$_N$	6 30.7				
	M$_{1N}$	6 34.5	8		19	
	eL$_E$	6 30.9	4			
	M$_{1E}$	6 32.7	6	10		
	F	6 49				
June 18	eL$_N$	16 11.2	7			
	M$_{1N}$	16 12.8	8		8	
	eL$_E$	16 11.2	7			
	M$_{1E}$	16 12.3	7	7		
	F	16 16				
June 19	iP$_N$	22 06 05				Local.
	iP$_E$	22 06 05				
	M$_{1E}$	22 06 07	?	35		
	M$_{1N}$	22 06 09			30	
	F	22 07.5				
June 20	eS$_E$	14 31.5	17	8		
	eLr$_N$	14 38.7	20		13	
	eL$_E$	14 38.8	20	13		
	F	14 52				
June 28	eL$_E$	17 36.7				Faint activity on both components.
	eL$_E$	17 38.0	10	3		
	?e$_N$	17 40.5	6		3	
	F	17 46				
June 30	iP$_N$	4 44 05				Local shock; very short periods.
	iP$_E$	4 44 05				
	M$_{1N}$	4 44 06	?		32*	
	M$_{1E}$	4 44 06	?	50*		
	F	4 46.3				

* indicates trace amplitude in one-tenth millimeters.

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Table II. Instrumental Reports. Cornell University.

ITHACA, New York. P. G. Sheldon, Observer.

Lat. 42° 27.'0 N. Long. 76° 29.'2 W. h, 243 m.

Instrument	Compo-nent	Mass	T_o	V	ϵ	
Bosch-Omori	EW	25 kg.	21 s.?	12	4:1	
do	NS	25 kg.	24 s.?	13	4:1	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Apr. 14	P	6 35 09				
	S	6 44 36				
	L	6 58				
	F	8 01				
Apr. 16	eL	8 46				P and S were recorded but the time signals were lacking.
	F	9 46				
May 7	L	22 14				
	F	22 22				
May 9	P	20 13 20				
	e	20 16 50				
	e	20 19				
	L	20 23	24			
	F	20 45				
May 19	L	5 46	16			
	F	5 57				
May 22	P	22 46 37				
	PR_1	22 50 36				
	e	22 52 35				
	i	22 57 19				
	i	22 59 39				
	e	23 04 56				
	e	23 08 52				
	L	23 18.5	30			
	M_N	23 29.1	25		50*	
	M_N	23 37.9	16		80*	
	F	2 08				
June 3	e	7 34 05				
	i	7 34 53				
	i	7 40 56				
	e	7 52 10				
	e	7 56 54				
	eL	8 14.5				
	L	8 18	38			
	F	9 36				

* indicates trace amplitude in one-tenth millimeters.

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Table II. Instrumental Reports. Theosophical University.

POINT LOMA, California. Fred J. Dick, Observer.

Lat. 32° 43.0 N. Long. 117° 15.2 W. h, 91 m.

Two-horizontal-component astatic arrangement, on lines of a suggestion by C. D. West. Also an arrangement for recording vertical movements. V=1

Date	Phase	Time	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Apr. 4		16 00		250*	100*	
5		do		150*	100*	
11		do		350*	200*	
14		do		250*	250*	
16		do		150*	50*	
May 5		16 00		200*	100*	From May 15th to June 30th no record was kept owing to illness of the observer. The following are notations made by the substitute observer during June: June 17th, between 6:00 and 6:30 p.m. (Pacific Time), 4 light shocks, Rossi-Forel I-II. June 23d, 10:00 p.m.; very light shock, Rossi-Forel I-II. May 11th, 10:30 a.m.; light shock.
6		do		150*	100*	
7		do		200*	200*	
8		do		250*	200*	
10		do		200*	100*	
11		do		200*	140*	
13		do		300*	150*	
15		do		150*	100*	

* indicates trace amplitude in microns.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

SAN JUAN, Porto Rico. W. M. Hill, In Charge.

Lat. 18° 23.'4 N. Long. 66° 07.'3 W. h, 80 m.

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Instrument	Compo-nent	Mass	T_o	V	ϵ	
Bosch-Omori	EW	10 kg.	8 s.	10	Undamped	
do	NS	do	8 s.	10	do	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Apr. 14	eP_E	6 29 26				Nothing on NS.
	eP_cP_E ?	6 30 35				
	ePR_{2E}	6 32 08				
	iS_E	6 36 26				
	iL_{1E}	6 41 08				
	M_{1E}	6 41 20	10	15*		
	F	7.1				
May 22	eL_{1E}	23 27.0				
	eL_{1N}	23 34.3				
	eL_{2E}	23 41.0				
	eL_{2N}	23 41.5				
	M_{1N}	23 42.8	22		5*	
	F	0 25				
June 14	iP_E	9 01 52				Local shock.
	iL_{1E}	9 02 11				
	M_{1E}	9 02 17		8*		
	eL_{1N}	9 02 02				
	F	9 08				

* indicates trace amplitude in one-tenth millimeters.

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

SITKA, Alaska. F. P. Ulrich, In Charge.

Lat. 57° 03.'0 N. Long. 135° 20.'1 W. h, 15 m.

Instrument	Compo-nent	Mass	T_o	V	ϵ	
Bosch-Omori	EW	10 kg.	18.9 s.	10	Undamped	
do	NS	10 kg.	16.9 s.	10	do	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Apr. 14	ePR_{1E}	6 42.5				
	$e\overline{S_cP_cS}_N$	6 48.2				
	$e\overline{S_cP_cS}_E$?	6 48 52				
	ePS_N	6 52.0				
	M_{1N}	6 52.1	12		5*	
	F	7.1				
Apr. 16	eS_N	8 25 26	5		1*	
	eL_E	8 29 25	22			
	M_{1E}	8 32.4	18	5*		
	eL_N	8 30 22				
	e_N	8 32 26				
	M_{1N}	8 33.2	16		10*	
	F	9.2				
May 7	eL_N	22 00 07				
	eL_E	21 59 58				
	F	22 03.8				
May 22	O_1	22 32 48				Δ_1 = 8240 km.
	O_2	22 32 58				Δ_2 = 8060 km.
	eP_E	22 44 22				Absolute time uncertain; time
	eP_N	22 44.3				marks lacking.
	ePR_{2N}	22 48 50				
	eS_N	22 53 20	12		10*	
	eS_E	22 53 54				
	eSR_{1N}?	22 58 20	22			
	eSR_{1E}	22 58 38				
	eL_N	23 11 48	23			
	M_{1N}	23 15.3	19		365*	
	eL_E	23 15 22				
	M_{1E}	23 15 30	20	410*		
	F	0 28				
June 3	$e\overline{S_cP_cS}_N$	7 36.2	5		1*	
	$e\overline{S_cP_cS}_E$	7 36 16	8	5*		
	ePS_E	7 38 22				
	eSR_{1N}	7 43 59	10		4*	
	eSR_{2N}	7 48.2				
	M_{1N}	7 55.0	16		3*	
	M_{1E}	7 39.1	17	6*		
	M_{2E}	7 45.0	12	4*		
	F	8 26				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Lat. 32° 14.'8 N. Long. 110° 50.'1 W. h, 770 m.

Instrument	Compo-nent	Mass	T_o	V_o	f	
Wood-Anderson	EW	2.3 gms.	5.3 s	435	About 30:1	
do	NS	2.3 gms.	5.3 s	435	30:1	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	NOTE: Amplitudes are expressin one-tenth millimeters for Tucson. Actual ground movements, if desired, may be computed from a table on pg. 43 of the report for the first quarter of 1927, serial number 463.
Apr. 1	?P_N	0 29 05				
	e_N	0 29.5	1?		1	
	i_N	0 30 08	2		1	
	e_E	0 30 05	3	1		
	L_E	0 30 23	4	1		
	iL_N	0 30 30	2		10	
	F	0 40				
Apr. 1	O_1	19 06 13				Δ_1 = 8490 km.
	O_2	19 06 22				Δ_2 = 8320 km.
	P_N	19 18 00	1		1	No record on EW.
	e_N	19 19 27	4		5	
	iS_N	19 27 45				
	F	20.1				
Apr. 6	e_N	19 03.0				
	e_N	19 04.9				
	e_N	19 10.0	4		4	
	e_E	19 10.0				
	F	19 22				
Apr. 6	e_N	20 23.4				
	i_N	20 30 37	2		2	
	e_E	20 31.0				
	F	20 34.4				
Apr. 6	e_N	23 47 21	1		2	Local
	e_E	23 47.0				
	F	23 49				
Apr. 9	eP_N	19 09 03	2		1	
	eP_E	19 08.5				
	e_N	19 10 12				
	?eS_N	19 13.3				
	?e_E	19 14 55				
	Lq_N	19 15 04				
	M_{1N}	19 15 17	4		34	
	Lq_E	19 15 05				
	M_{1E}	19 15 15	4	32		
	Lr_N	19 15 26				
	M_{2N}	19 15 32	4		35	
	Lr_E	19 15 19				
	M_{2E}	19 15 30	4	19		
	F	19 22				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Apr. 14	O_1	6 23 39				Δ_1= 8240 km.
	O_2	6 23 47				Δ_2= 8060 km.
	P_N	6 35 11	4		14	
	P_E	6 35 13	4	8		
	e_N	6 35 45	4		45	
	i_E	6 35 47				
	iS_E	6 44 45	8	22		
	eS_N	6 44 49				
	iPS_N	6 45 24				
	ePS_E	6 45 11	10	25		
	eSR_{2E}	6 53.0	22	20		
	eSR_{2N}	6 53.0				
	eL_N	7 00.0	23		5	
	M_{1E}	7 04.4	16	10		
	F	7.8				
Apr. 15	e_N	10 47 08				
	eL_E	10 50 54				
	M_{1E}	10 53.0	8	4		
	eL_N	10 51.5				
	F	11.1				
Apr. 16	e_N	2 51 26	2		1	Nothing on EW.
	F	2 57				
Apr. 16	O_1	8 14 53				Δ_1= 5880 km.
	O_2	8 14 49				Δ_2= 5940 km.
	P_N	8 24 17	3		4	
	$?e_E$	8 24 36				
	eS_N	8 31 47	5		5	
	S_E	8 31 34	5	5		
	eL_N	8 37 55	22		5	
	eL_N	8 40 37	14		3	
	eL_E	8 38 42	18	6		
	eL_E	8 41 48				
	M_{1E}	8 44.7	19	10		
	F	9.8				
Apr. 20	e_N	6 01 45	2		1	Local? Weak activity on EW.
	e_E	6 01.9				
	F	6 05				
Apr. 21	eP_N	11 37 40	2		1	
	iS_E	11 42 14	6	7		
	eL_E	11 47 39	6	5		
	F	12 03				
Apr. 24	e_N	15 35 01				Calexico?
	$?e_E$	15 35 07				
	i_N	12 35 39				
	i_E	15 35 37	2	1		
	eL_N	12 36 02				
	M_{1N}	12 36 10	4		6	
	eL_E	15 35 53				
	M_{1E}	15 36 10	5	5		
	F	15 39.0				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Apr. 25	iP_N	5 33 05				
	iP_E	5 33 09	1	1		
	i_N	5 33 40				
	e_E	5 33 41				
	iS, L_N	5 33 46				
	iS, L_E	5 33 45	3	20		
	F	5 42.0				
Apr. 27	O_1	13 56 45				Δ_1= 2370 km.
	O_2	13 56 34				Δ_2= 2470 km.
	ePN	14 01 38	4		2	EW record lost.
	eS_N	14 05 33	8		1	
	Lq_N	14 07 35	5			
	M_{1N}	14 08.2	5		30	
	Lr_N	14 08.7				
	F	14.5				
Apr. 27	ePN	19 29.3	4		1	Activity very weak on NS
	ePR_{1N}	19 33.3	5		1	component.
	eS_N	19 39.5	4		1	
	eS_E	19 39.6	5	4		
	eL_E	20 03.2	19	1		
	M_{1E}	20 08.5	20	3		
	F	20.5				
Apr. 27	O_1	21 53 14				Δ_1= 2180 km.
	O_2	21 53 04				Δ_2= 2260 km.
	P_N	21 57 45	4		5	
	P_E	21 57 47	4	5		
	eS_N	22 01 26	4		1	
	eS_E	22 01 26	8	5		
	L_N	22 03 28	4			
	M_{1N}	22 03 51	4		30	
	L_E	22 03 24				
	M_{1E}	22 03 52	5	35		—
	F	22 16				
May 1	eL_N?	6 42.8	3		4	Local
	eL_E?	6 42.8	5	4		
	F	6 46.6				
May 5	e_N	17 08 09				Calexico?
	e_E	17 08 08				
	L_N	17 08 14	2			
	M_{1N}	17 08 25	2		9	
	L_E	17 08 13	3	11		
	F	17 14.5				
May 9	O_1	20 05 42				Δ_1= 2680 km.
	O_2	20 05 29				Δ_2= 2810 km.
	P_N	20 11 08	4		9	
	P_E	20 11 07	5	9		
	$?ePR_{1E}$	20 12.0	2	13		
	eS_N	20 15 27	6		19	
	eS_E	20 15.7	6	24		

(continued)

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
May 9		(continued)				
	eSR_{1E}	20 16.9	5			
	e_E	20 18 39	5	24		
	iL_N	20 18 50				
	M_{1N}	20 19.3	5		42	
	M_{2N}	20 19.7	4		43	
	iL_E	20 19 05				
	M_{1E}	20 19 23	5	60		
	F	20 40				
May 19	e_N	5 33.6				Practically nothing on EW.
	F	5 37.3				
May 21	eP_N	17 06 04	4		2	
	iP_E	17 06 02	4	4		
	ePR_{1E}	17 09 10	2	3		
	iS_N	17 15 59	5		9	
	iS_E	17 16 00	5	6		
	F	17 23				
May 22	e_N	22 33				Instrument adjustment in progress; records not legible.
	F	?				
May 28	e_E	17 40.6				
	$?e_N$	17 42 55				
	e_N	17 43 15	3		1	
	eL_E	17 43 03				
	eL_N?	17 43 31	4		2	
	F	17 46.6				
May 31	eL_N	13 16 23	4		1	Nothing on EW.
	eL_N	13 18 34	7		1	
	F	13 20				
May 31	eP,PR_{1N}	13 06.3	3		1	EW record too faint to read.
	$?eS_N$	13 10.2	4		1	
	F	13 12				
June 3	ePR_{1E}	7 31 41	4	20		Weak light; last part of activity did not register.
	ePR_{1N}	7 32 00	3		5	
	e_N	7 32 34	3		8	
	$S_CP_CS_E$	7 37 42	6	19		
	S_N	7 39 00	4		45	
	iS_E	7 39 02	7	55		
	ePS_E	7 41 43	16	25		
	eSR_{1N}	7 47.9	15		20	
	eSR_{2N}	7 51.6	16		15	
	eSR_{2E}	7 52.5	18	15		
	eLq_N	8 00.0				
	M_{1N}	8 01.7	40		22	
	eLq_E	8 01.0	30	9		
	Lr_N	8 04 16	26		11	
	eLr_E	8 05.6	34			
	M_{1E}	8 07.5	32	55		
	F	9 45				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
June 6	eP_E	18 37.3	4	3		No activity observed on NS.
	e_E	18 40.9	4	1		
	eS_E	18 47.7	6	4		
	F	18.9				
June 11	P_N	8 00 19	2		5	Record on EW component too
	e_N	8 01 22	5		5	faint for interpretation.
	e_N	8 02 02	5		2	
	e_N	8 02 28	2		6	
	iL_N	8 02 51	3			
	M_{1N}	8 03.4	3		40	
	F	8.4				
June 11	eL_N?	8 51 50				Record on EW component too
	M_{1N}	8 52.5	4		5	faint for interpretation.
	F	8 56				
June 11	eL_E?	18 05.0				NS record lost.
	M_{1E}	18 06.5	4	4		June 14 to 25 - no records. Instrument out of order.

Table IIa. Microseisms. C. and G. Survey Magnetic Observatory.

HONOLULU, Hawaii. J. H. Peters, In Charge.

Days of subnormal activity: Max. A_{EN} about 6*	Apr. 21-23 May 1-4, 20-23, 28-31 June 7-11, 19-27, 29
Days of normal activity: Max. A_{EN} about 12*	April 1-9, 19, 20, 24, 28-30 May 5-13, 16-19, 24-27 June 1-6, 12-14, 17, 18, 28, 30
Days of abnormal activity: Max. A_{EN} about 18*	April 10-18, 25-27 May 14, 15 June 15, 16

* Indicates trace amplitude in microns.

Table IIa. Microseisms. Theosophical University.

POINT LOMA, California. F. J. Dick, Observer.

See Table II for microseismic activity recorded at this station.

International Seismological Centre

Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from April 1, 1927 to June 30, 1927.

International Seismological Centre

List of Seismological Observatories and Station Symbols.

*BER	Berkeley, Calif.	**MAN	Manila, P.I.
CAM	Cambridge, Mass.	*MOB	Mobile, Ala.
CHE	Cheltenham, Md.	*NOR	New Orleans, La.
CHI	Chicago, Ill.	*NYF	New York (Fordham), N.Y.
*CLA	Santa Clara, Calif.	*OTT	Ottawa, Can.
CZB	Canal Zone, Balboa Heights	*SAS	Saskatoon, Can.
*DEN	Denver, Colo.	SIT	Sitka, Alaska
*GEO	Georgetown, D.C.	SJU	San Juan, P.R.
GUAM	Guam, M.I.	*SPO	Spokane, Wash.
*HAL	Halifax, Can.	*STA	Ste.Anne de la Pocatiere, Can.
HON	Honolulu, T.H. (Ewa)	*STL	St. Louis, Mo.
**HVO	Hawaiian Volcano Obs'y.	*TOR	Toronto, Can.
ITH	Ithaca, N.Y.	TUC	Tucson, Ariz.
LOM	Point Loma, Calif.	*VIC	Victoria, B.C.
*LICK	Lick Obs'y., Calif.		

* Instrumental registers are not published in this report.

** Only teleseismic reports are noted in this table. See introductory remarks.

NOTE

See introductory remarks concerning tabulation of provisional origins. Observatories listed in this table are limited to those submitting monthly reports to the Coast and Geodetic Survey in time for routine publication. Although foreign reports are also utilized, reference to them is not made because of the limited purpose which this report serves. When origins are determined by other institutions such as the Central Seismological Bureau at Strasbourg, the source of information is stated.

An asterisk (*) after the tabulated time indicates instrumental time of origin. Otherwise the tabulated time refers to the approximate time the earthquake was felt, or the time at which the initial phase was recorded at the first observatory named, if not felt.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquake.
1927			
Apr. 1	0 29*?	Probably Calexico, Calif.	TUC CHI OTT TOR
1	19 05.6*	Pacific O., S.E., 22° S., 175° W.	TUC HON OTT STL NYF MAN VIC TOR CHI HVO
5	?	Calif., Ventura	Felt
5	0 56	-----	CHI
5	9 17	-----	GUAM
6	8 47	-----	GUAM
6	17 13	-----	GUAM
6	18 54*?	South America	TUC CHI OTT VIC TOR
6	20 23	-----	TUC OTT
6	23 47	-----	TUC Local
8	?	Alaska	Felt
9	5 00	Oregon	Felt
9	16 51.5*	South America, 19.7° S., 70.2° W.	TOR OTT MAN Epicenter reported by La Paz.
9	19 09	-----	CHI TUC VIC OTT
9	21 32	-----	OTT TOR

Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from April 1, 1927 to June 30, 1927.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927			
Apr. 11	22 39	-----	GUAM
11	23 19	-----	OTT
12	23 24.0*	Calif., Sta. Cruz	Felt. VIC BER LICK
13	0 07	-----	OTT
13	2 12	-----	GUAM
13	13 44.0*	China Sea, 15° N., 118° E.	MAN OTT VIC TOR
13	14 33	-----	HON MAN GUAM
14	6 23.7*	South America, 32.5° S., 69.6° W.	Destructive. TUC SIT SJU ITH HON CHI CHE CAM CZB OTT HAL STA NYF MAN VIC TOR HOR STL BER LICK
15	10 47	-----	TUC TOR OTT
15	11 45	-----	GUAM
16	2 51	Calif., near Los Angeles	Felt. TUC
16	8 15.0*	Pacific O., N.E., 51° N., 178° W.	TUC SIT ITH HON CHI CHE CAM STL OTT STA NYF MAN VIC TOR BER
16	10 37	-----	CHI
17	1 39	-----	GUAM
17	4 24.3*	Pacific O., N.E., 22° N., 158° W.	Felt. HON
17	16 50	Alaska	Felt
17	17 27	-----	GUAM
17	21 26	-----	GUAM
18	10 30	Tennessee	Felt
18	14 01	-----	OTT VIC TOR
18	14 31	-----	HON Apparently not identical with preceding shock.
18	15 22	-----	GUAM
19	17 30.2*	Pacific O., N.W., 15° N., 119° E.	Felt. HON OTT MAN VIC TOR
19	20 28	-----	CHI Seismic origin questionable.
20	6 01	-----	TUC Local
21	6 50	-----	OTT
21	11 31.9*?	Pacific O., N.E., 7°? N., 104°? W.	TUC HON OTT
24	15 08	-----	GUAM
24	15 35	Calif., Calexico?	TUC
25	5 31*?	Calif., Calexico?	TUC CHI VIC OTT
27	2 50.2*	Pacific O., S.W., 18° S., 179° E.	OTT TOR MAN
27	13 56.5*	Pacific O., N.E., 14° N., 97° W.	TUC CHI OTT VIC TOR
27	19 16.0*	Pacific O., N.W., 31° N., 144° E.	TUC HON OTT VIC MAN
27	21 53.0*	Pacific O., N.E., 15° N., 96° W.	TUC CHI OTT VIC TOR
29	11 19.8*	North Atlantic O., 62°? N., 20° W.?	CHI OTT VIC TOR
30	1 10	Hawaii	Felt
30	2 15	South Dakota	Felt
30	13 57.3*	Asia, 39.8° N., 74.2° E.	CHI OTT VIC TOR MAN Epicenter reported by Tachkent.
May 1	0 04	Hawaii	Felt
1	3 55	-----	OTT TOR Shock reported at Johannesburg, South Africa.

International Seismological Centre

Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from April 1, 1927 to June 30, 1927.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927			
May 1	6 43	-----	TUC Local.
1	19 32	-----	GUAM
2	11 34	-----	OTT VIC TOR
2	13 00	-----	GUAM HON
3	13 41.3*	Pacific O., S.W., 1° S., 150° E.	HON OTT VIC TOR NYP MAN
5	15 06	-----	OTT TOR
5	17 06.6*	Calexico region?	TUC
7	8 34	Ark., and Central States	Felt. CHI TOR
7	21 55.1*	Pacific O., N.E., 49° N., 130° W.	SIT ITH CHI OTT VIC TOR
9	10 31.8*	Asia, 28° N., 56° E.	OTT VIC TOR
9	20 05.4*	Pacific O., N.E., 12° N., 94° W.	TUC ITH HON CHI CAM OTT VIC TOR NYP STL BER
10	6 03.8*	Indian O., 1° S., 100° E.	OTT TOR MAN
10	8 40	-----	OTT
11	1 18.9*	New Guinea, 4° S., 140° E.	OTT VIC TOR MAN
12	4 52	-----	GUAM
13	0 23.5*	Atlantic O., 48° N., 31° W.	OTT TOR
13	23 09.4*	Pacific O., S.W., 4° S., 140° E.	HON CHI OTT VIC TOR MAN NYP
15	2 47.2*	Europe, Belgrade, 44° N., 21° E.	Destructive. OTT VIC TOR MAN
15	11 20	California	Felt
16	12 01.0*	Pacific O., N.W., 29° N., 142° E.	HON OTT VIC TOR MAN
16	14 52	California	Felt
17	8 50	-----	GUAM
19	5 25.2*	Pacific O., N.E., 2.3° N., 86.5° W.	TUC ITH HON CHI OTT VIC TOR Position quoted from La Paz report.
21	16 53.7*	Pacific O., S.E., 22° S., 175° W.	TUC HON CHI OTT VIC TOR MAN
22	1 46.1*	South America, 20.5° S., 69.5° W.	CHI OTT TOR VIC Epicenter reported by La Paz.
22	5 00	Utah	Felt.
22	11 56.9	Pacific O., S.W., P.I., 13.4° N., 125° E.	Felt. MAN OTT VIC Epicenter reported by Manila.
22	21 16.2*	Pacific O., N.E., 21° N., 158° W.	Felt. HON
22	22 32.7*	China, Kansu, 37° 29.88 N., 102° 51.96 E.	Destructive. SIT TUC ITH HON CHI CHE STL CAM CZB OTT STA SAS VIC TOR MAN DEN HVO HAL BER LICK Epicenter quoted from paper by W.C. Repetti, S.J., in vol. 18, No. 1, BSSA for March, 1928.
22	23 27	-----	SJU
23	8 39	-----	GUAM
23	13 51.0*	Asia, 37° N., 103° E.	OTT TOR MAN
23	23 44.8*	Asia, 37° N., 103° E.	OTT VIC TOR MAN
24	0 32	-----	OTT TOR
28	0 02	-----	OTT TOR
28	17 38	California	Felt. TUC OTT TOR BER LICK
31	13 00.6*	Pacific O., N.E., 12°? N., 96°? W.	TUC OTT TOR NYP CHI

International Seismological Centre

42 Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from April 1, 1927 to June 30, 1927.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927			
May 31	20 09	Alaska	Felt
June 1	12 23	New Jersey	Felt. NYF
2	4 28	Hawaiian Is.	HON Local shock.
2	16 37.3*	Asia, 23° N., 82° E.	OTT TOR VIC MAN
3	7 11.9*	Pacific O., S.W., 8° S., 132° E.	HON TUC ITH CHI CAM CZB OTT NYF SIT MAN STL TOR MAN VIC HVO BER LICK
3	17 15	-----	GUAM
5	8 24.9*	Asia Minor, 36° N., 32° E.	OTT VIC
6	12 46	-----	HON VIC
6	18 24.0*	Pacific O., S.E., 32° S., 179° W.	TUC HON OTT TOR VIC MAN
6	19 21	-----	CHI
7	15 14.5*	Pacific O., N.E., 51° N., 178°? W.	HON OTT VIC
8	20 44	-----	GUAM
9	5 15	California	Felt
9	22 52	-----	VIC TOR OTT
10	7 16	Virginia	Felt
10	17 08.2*	South America, 3° S., 79° W.	Felt. CHI OTT TOR VIC
11	2 32.0*	Pacific O., S.W., 2° S., 132° E.	HON OTT MAN VIC
11	8 00	-----	TUC CHI OTT TOR VIC
11	8 52	-----	TUC
11	18 05	-----	TUC
12	2 40	-----	TOR OTT
14	4 02.2*	Pacific O., N.W., 43° N., 147° E.	OTT
14	9 01	Porto Rico	Felt. SJU
14	17 17.0*	Indian O., 52° S., 142° E.	HON CHI OTT TOR MAN VIC
14	18 32	-----	CHI
16	13 00	Alabama	Felt
16	14 34	-----	GUAM
17	6 03.7*	Pacific O., S.E., 3° S., 103° W.	HON OTT TOR VIC HVO
18	0 56.1*	China Sea, 17° N., 119° E.	Felt. OTT MAN
18	3 26	-----	GUAM
18	4 56	-----	GUAM
18	10 17.0?*	Pacific O., N.E., 2°? N., 81°? W.	CHI OTT TOR VIC
18	10 52	-----	GUAM
18	15 55.2*	Pacific O., N.E., 50° N., 135° W.	HON OTT TOR VIC
19	0 27.8*	Atlantic O., 55° N., 34° W.	CHI OTT TOR VIC
19	11 59	-----	GUAM
19	16 37	-----	OTT CHI TOR
19	22 06	-----	HON
20	14 15.2*	Pacific O., N.W., 39° N., 149° E.	HON OTT TOR MAN VIC NYF
22	0 43	-----	OTT TOR
22	20 52	-----	OTT
23	23 42.3*	Asia, 38° N., 103° E.	OTT TOR VIC MAN
24	0 53	California	Felt

International Seismological Centre

Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from April 1, 1927 to June 30, 1927.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927			
June 26	11 20.7*	Europe, Crimea, 45° N., 34° E.	Destructive. CHI OTT TOR MAN VIC NYF
28	17 19.5?*	Pacific O., 51°? N., 180°? W.	HON OTT TOR
29	9 11	-----	OTT
29	12 08	-----	GUAM
29	17 54	-----	OTT TOR VIC
29	22 25	-----	OTT TOR
30	4 44	Hawaiian Is.	HON Local shock.
30	5 50	Alaska	Felt
30	22 59.4*	Europe, 38° N., 22° E.	OTT TOR VIC

Table IIIa - Distribution of Earthquakes
April 1, 1927 to June 30, 1927.

Regions and Dates An underscore (_) indicates a heavy shock. An interrogation mark (?) indicates doubtful classification.	Number of Earthquakes located provisionally	Number of Earthquakes located with uncertainty
Alaska: Apr. 8, 17; May 31, June 30	4	
Hawaii: Apr. 17, 30; May 1, June 21	4	
United States:		
Alabama: May 7, June 16	2	
California: Apr. 1, 5, 12, 16, 24?, 25?; May 5?, 15, 16, 28; June 9, 24	9	3
New Jersey: June 1	1	
Oregon: Apr. 9	1	
South Dakota: Apr. 30	1	
Tennessee: Apr. 18	1	
Utah: May 22	1	
Virginia: June 10	1	
West Indies: June 14	1	
South America: Apr. 6, 9, 14; May 22, June 10	5	
Europe: May 15, June 26, 30	3	
Asia: Apr. 9, 30; May 22, 23, 23; June 2, 5, 23	8	
Pacific Ocean:		
N.E. of lat. 0°, long. 180°: Apr. 9. 16, 19, 21?, 27, 27; May 7, 9, 19, 22, 31?; June 7?, 18?, 18, 28?, 30	11	5
S.E. of lat. 0°, long. 180°: Apr. 1, May 21, June 6,17	4	
S.W. of lat. 0°, long. 180°: Apr. 11, 27; May 3, 13, 22; June 3, 11	7	
N.W. of lat. 0°, long. 180°: Apr. 13, 27; May 11, 16; June 14, 18, 20	7	
Atlantic Ocean: Apr. 29?, May 13, June 19	2	1
Indian Ocean: May 10, June 14	2	
Unknown: Apr. 5, 5, 6, 6, 6, 6, 9, 9, 9, 11, 13, 13, 13, 15, 15, 16, 17, 17, 17, 18, 18, 18, 19, 20, 21, 24; May 1, 1, 1, 2, 2, 5, 7, 10, 12, 17, 22, 23, 28; June 2, 3, 6, 6, 8, 9, 11, 11, 11, 12, 14, 16, 18, 18, 18, 19, 19, 19, 22, 22, 29, 29, 29, 29		(63)
	75	72

General Summary of Earthquakes.

Locations well or approximately known	74
Locations uncertain	10
Locations unknown	63
Total number of earthquakes recorded	147

International Seismological Centre

Table IIIb. Earthquakes whose epicenters have been determined instrumentally. An asterisk (*) indicates that a provisional location has been published through SCIENCE SERVICE, Washington.

Date	Time of Origin G. M. T.	Epicenter	
		Latitude	Longitude
1927	h. m.	°	°
April 1	19 05.6	22 S	175 W
9	19 03.3?	10 N?	95 W?
13	13 44.0	15 N	118 E
14*	6 23.7	32.5 S	69.7 W
16	8 15.0	51 N	178 W
17	4 24.3	22 N	158 W
19	17 30.2	15 N	119 E
21	11 31.9	7 N?	104 W?
27	2 50.2	18 S	179 E
27	13 56.5	14 N	97 W
27	19 16.0	31 N	144 E
27	21 53.0	15 N	96 W
29	11 19.8	62 N?	20 W?
30	13 57.3	39.8 N	74.2 E
May 3	13 41.3	1 S	150 E
7	21 55.1	49 N	130 W
9	10 31.8	28 N	56 E
9	20 05.4	12 N	94 W
10	6 03.8	1 S	100 E
11	1 18.9	4 S	140 E
13	0 23.5	48 N	34 W
13	23 09.4	4 S	140 E
15	2 47.2	44 N	21 E
16	12 01.0	29 N	142 E
19	5 25.2	2.3 N	86.5 W
21	16 53.7	22 S	175 W
22	1 46.1	20.5 S	69.5 W
22	21 16.2	21 N	158 W
22*	22 32.7	37.5 N	102.9 E
23	13 51.0	37 N	102 E
23	23 44.8	37 N	102 E
31	13 00.6	12 N?	96 W?
June 2	16 37.3	23 N	82 E
3*	7 11.9	6 S	132 E
5	8 24.9	36 N	32 E
6	18 24.0	32 S	179 W
7	15 14.5	51 N	178 W?
10	17 08.2	3 S	79 W
11	2 32.0	2 S	132 E
14	4 02.2	43 N	147 E
14	17 17.0	52 S	142 E
17	6 03.7	3 S	103 W
18	0 56.1	17 N	119 E
18	10 17.0?	2 N?	81 W?
18	15 55.2	50 N	135 W
19	0 27.8	55 N	34 W
20	14 15.2	39 N	149 E
23	23 42.3	38 N	103 E
26	11 20.7	45 N	34 E
28	17 19.5?	51 N?	160 W?
30	22 59.4	38 N	22 E

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ACKNOWLEDGMENT OF EARTHQUAKE REGISTERS RECEIVED

The U. S. Coast and Geodetic Survey gratefully acknowledges the receipt of reports of instrumental records of earthquakes from the observatories listed below. The issues listed have been received since the publication of the last seismological report, Serial No. 463.

This Bureau desires to exchange bulletins with all seismological institutions, and will give immediate attention to any station not receiving Coast and Geodetic Survey seismological reports.

Stations	Bulletins
Balboa Heights (Principal Earthquakes).....	October, 1929
Barcelona.....	June, 1928-June, 1929
Batavia (Principal Earthquakes).....	August, September, 1929
Batavia.....	January-June, 1929
Beograd (Annuaire Seismique).....	Year 1926
Berkeley.....	October, 1928-March, 1929
Denver.....	June, July, 1929
Georgetown.....	August, 1929
Georgetown (Press Dispatches).....	October, 1929
Guam.....	March-August, 1929
Hawaiian Volcano Obs'y. (Volcano Letter)...	October, 1929
Hawaiian Volcano Obs'y. (Monthly Bulletin).	October, 1929
Hamburg.....	July-September, 1929
Lemberg.....	January-March, 1929
Manila (Principal Earthquakes).....	July, September, 1929
Manila.....	August, 1929
Ottawa (Bibliography of Seismology).....	1929, Vol. 10, No. 1
Ottawa.....	September, October, 1929
St. Louis (Epicenters).....	October 5,6,19, 1929
St. Louis (Florissant Station).....	July, 1929
Strasbourg (International) Bull. Provis....	September, 1929
Strasbourg (University) Bull. Seis.....	September, 1929
Victoria.....	October, November, 1928

MISCELLANEOUS SEISMOLOGICAL ACTIVITY

GEODETIC WORK

Leveling in connection with earthquake investigation was done in California by the Coast and Geodetic Survey as follows:

Chatsworth to San Pedro (revision)
Santa Ana to Orange (revision)
Burbank to Chatsworth (revision)
La Jolla to San Diego

HYDROGRAPHIC WORK

Vessels engaged in survey work are directed to make reports of visible or felt effects of earthquakes. No reports were received for the period covered by this report.

TIDAL OBSERVATIONS

Tidal records of the Bureau were examined for disturbances possibly due to submarine earthquakes. Nothing definite was noted.

SEISMOLOGICAL REPORT

International Seismological Centre

JULY, AUGUST, SEPTEMBER

1927

SERIAL NUMBER 495

U. S. DEPARTMENT OF COMMERCE

COAST AND GEODETIC SURVEY

U. S. DEPARTMENT OF COMMERCE
R. P. LAMONT, Secretary
COAST AND GEODETIC SURVEY
R. S. PATTON, Director

International Seismological Centre

Serial No. 495

SEISMOLOGICAL REPORT

JULY, AUGUST, SEPTEMBER

1927

BY

FRANK NEUMANN

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1930

For sale by the Superintendent of Documents, Washington, D. C. - Price 10 cents per copy
25 cents a year

S E I S M O L O G I C A L R E P O R T

July, August, September, 1927.

By Frank Neumann, United States Coast and Geodetic Survey.

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INTRODUCTION

The quarterly seismological reports of the Coast and Geodetic Survey are prepared in the division of terrestrial magnetism and seismology under the direction of Captain N. H. Heck, hydrographic and geodetic engineer, chief of division. R. R. Bodle assisted in the preparation of this report.

Preceding reports. - Serials Nos. 328, 337, 363, 388, 395, 405, 424, 431, 463 and 468 cover the seismological work of the Coast and Geodetic Survey from July, 1924, to June, 1927, inclusive. They are essentially a continuation in new form of the seismological reports of the U. S. Weather Bureau which first appeared in the Monthly Weather Review in 1914. All publications available for distribution may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C.

NONINSTRUMENTAL REPORTS - TABLE I

Table I is primarily a register of information bearing on the observed intensity of earthquake vibrations. It is the only practicable means by which the relative intensity of earthquake shocks may be properly recorded for statistical purposes or for investigating the distribution of intensity in the case of individual shocks.

The machinery for collecting this information is at present inadequate. In fact, only active cooperation on the part of the public will serve the purpose of the investigator satisfactorily. This is particularly true in sparsely populated regions. The Bureau, therefore, requests that anyone feeling or observing the effects of an earthquake shock send a report addressed to the Director, U. S. Coast and Geodetic Survey, Washington, D. C. for permanent abstracting in this publication. If forms are desired, they will be furnished upon request.

International Seismological Centre

The Rossi-Forel scale of intensities is used in tabulating the relative intensities of earthquake motions. Intensity evaluations in the fourth column of Table I are made in this office on the basis of the published abstract unless otherwise stated.

ROSSI-FOREL SCALE OF INTENSITIES

1. Microseismic shock. - Recorded by a single seismograph or by seismographs of the same model, but not by several seismographs of different kinds; the shock felt by an experienced observer.

2. Extremely feeble shock. - Recorded by several seismographs of different kinds; felt by a small number of persons at rest.

3. Very feeble shock. - Felt by several persons at rest; strong enough for the direction or duration to be appreciable.

4. Feeble shock. - Felt by persons in motion; disturbance of movable objects, doors, windows; cracking of ceilings.

5. Shock of moderate intensity. - Felt generally by everyone; disturbance of furniture, beds, etc.; ringing of some bells.

6. Fairly strong shock. - General awakening of those asleep; general ringing of bells; oscillation of chandeliers; stopping of clocks; visible agitation of trees and shrubs; some startled persons leaving their dwellings.

7. Strong shock. - Overthrow of movable objects; fall of plaster; ringing of church bells; general panic; without damage to buildings.

8. Very strong shock. - Fall of chimneys; cracks in the walls of buildings.

9. Extremely strong shock. - Partial or total destruction of some buildings.

10. Shock of extreme intensity. - Great disaster; ruins; disturbance of the strata, fissures in the ground; rock falls from mountains.

INSTRUMENTAL REPORTS - TABLE II

The analysis of seismograms of the Coast and Geodetic Survey observatories, the University of Chicago, and Harvard University is made at the Washington office of this Bureau. The only other reports published in full in this volume are from observatories which do not otherwise publish their results in permanent form.

The following observatories on the North American continent publish their own results, and inquiries in regard to them should be made directly to the institutions concerned or to the central stations:

United States: Georgetown, New York (Fordham), Berkeley and Mount Hamilton (both University of California), St. Louis, Denver, Mobile, Santa Clara, Spokane, New Orleans.

Canada: Halifax, Ottawa, Saskatoon, Toronto, Victoria, St. Anne. Halifax, Saskatoon, and St. Anne are subsidiary stations of the Dominion Observatory at Ottawa where the results of the four stations are analysed and published.

Mexico and Central America: Tacubaya (Mexico City) and subsidiary stations.

According to the best information available, observatories not mentioned in this report have not yet published their results.

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QUARTERLY SUMMARY OF EARTHQUAKES - TABLE III

Table III is a chronological summary of earthquakes listed in Tables I and II. It includes only earthquakes recorded in or near the United States, its insular possessions, Alaska, Canada, and Mexico. All other earthquakes are intentionally omitted.

Local earthquakes in Hawaii and the Philippines and swarm types in California constitute problems for local study and are not included in this report. Local shocks in these regions are tabulated as a rule only when they are recorded at both local and distant observatories, or when reported as severe by local observers.

Table IIIa is a summary of earthquakes according to region. Table IIIb is a tabulation of epicenters determined almost wholly or in part from instrumental reports acknowledged at the end of this report. When epicenters from other sources are utilized, acknowledgment is made in Table III.

Computed epicenters are in every sense provisional. They are determined (1) to furnish other institutions and the public early information concerning earthquakes recorded at American observatories, or reported in the press, (2) to classify earthquakes according to region - Table IIIa, (3) to aid in the interpretation of other instrumental records, (4) to aid in appraising the performance of American seismological observatories, and (5) to locate and discuss purely domestic earthquakes. For final reports on epicenters readers are referred to the International Seismological Summary prepared at the University Observatory, Oxford, England. A table of epicenters is also published by the Dominion Observatory at Ottawa, Canada.

Table I. Non-instrumental earthquake reports.
July 1, 1927 to September 30, 1927.

International Seismological Centre

Earthquake Intensities (Abbreviated Rossi-Forel)

1. Felt only by an experienced observer, very faint.
2. Felt by a few persons at rest, faint.
3. Direction or duration appreciable, weak.
4. Felt by persons walking. Doors, etc., moved.
5. Felt by nearly everyone. Furniture moved.
6. Bells rung, pendulum clocks stopped. Alarm.
7. Fall of plaster, slight damage. Scare.
8. Fall of chimneys, walls cracked. Fright.
9. Some houses partly or wholly wrecked. Terror.
10. Buildings ruined, ground cracked. Panic.

The details usually given in the Source and Remarks column include:

1. Source.
2. Intensity.
3. Number of persons observing.
4. Number of persons alarmed.
5. Outside disturbances.
6. Inside disturbances.
7. Observed motion.
8. Number of shocks.
9. Sounds.
10. Topography and ground formation.

Key to Abbreviations in Table I.

abr - abrupt
aft - after
bef - before
bldgs - buildings
bmp - bump;-ed;-ing
crk - crack;-ed;-ing

exp - explosive
fnt - faint
grd - gradual
h - hours
hls - hills
ld - loud

m - minutes
mi - miles
mvd - mov;-ed;-ing
mts - mountains
nr - nearly
obs - observ;-ed;-er

pln - plain
pop - population
sev - several
rkd - rocked
rkg - rocking
rky - rocky
rmb - rumbling

rpd - rapid
rtl - rattl;-ed;-ing
s - seconds
scr - scraping
sft - soft
shk - shaken, shook

sl - slight
swa - sway;-ed;-ing
thn - thunder;-ous;-ing
trm - trembl;-ed;-ing
tws - twisting
val - valley

"p" indicates a press report.

"WB" is a symbol for the U. S. Weather Bureau which cooperates actively in collecting earthquake information.

"BSSA" refers to the Bulletin of the Seismological Society of America.

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

o?o 11—9581

DATE	TIME G. M. T.	LOCALITY	INTENSITY	SOURCE AND REMARKS
1927 July	h. m.	**HAWAII**		
6	13 30	Waiohinu	4	W.H. Hayselden, WB. Felt by all; abr bmp; swa at finish; rky.
7	14 00 14 15	Haina	3	L. Hino, WB. Felt by majority; rpd bmp EW about 10 s; 2d shock about 1/2 m; sandy.
	14 10	Honomu	3	J.B. Oliver, WB. Felt by many; rpd rkg SW; val.
	14 05	Kohala	3	B.D. Bond, WB. Felt by many; rpd bmp; 2 shocks each 2 or 3 s; hls.
		CALIFORNIA		
8	0 47	Bakersfield and Kern Co.	4	P. Some bldgs shk; dishes rtl, chandeliers swa; 3 distinct shocks felt 6 mi NW of Bakersfield and other points in Kern County.
		ALASKA		
8	3 --	Seward		P. 2 distinct shocks felt.
		CALIFORNIA		
16	2 02	Calexico and El Centro	5	P. Series of shocks caused residents to rush to streets; duration 20 s; heaviest since January, 1927.
		GUAM		
17	18 49	Agana	3	Five shocks; grd trm, continuous movement, 6 m; felt by many.
18	5 23	do		Felt by many; abr trm 50 s; 1 shock.
		TENNESSEE		
20	?	Eastern and central parts		BSSA, P. Violent earthquakes felt in eastern and middle Tennessee.
		GUAM		
24	7 34	Agana		Felt by few: grd trm 5 s; one shock.
		CANADA		
25	00 56	Seven Falls, Quebec		H. Taylor. Tremor came from SSE, accompanied by audible rumble, duration 90 s.
	1 10	Seven Falls, Quebec		H. Taylor. 2 s duration.
		MAINE		
	1 00	St. Johns River Section 9 R 18		D.R. Baily. Felt.

International Seismological Centre

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

o7o 11—9581

International Seismological Centre

DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
July		**CANADA**		
(25)	- --	Quebec, St. Joaquim and Cape Tourmente		P. Earth vibration lasting sev s felt.
	1 55			Felt in Portneuf, Beaupre, Chateau Richer, Montmorency Falls, Lake St. Joseph and St. Catherine, Lake Sargent, Petite Riviere, St. Joachim, Cape Tourment, St. Valier, Giffard, Loretto and all of Quebec Province.
		HAWAII		
25	12 40	Honomu	2	J.B. Oliver, WB. Felt by sev; grd rkg NS; mts.
26	16 32	Waiohinu	3	W.H. Hayselden, WB. Felt by many; grd swa N-S; rky.
26	22 30	do	2	W.H. Hayselden, WB. Felt by sev; grd swa N-S; rky.
26	22 38	do	4	W.H. Hayselden, WB. Felt by everybody; rpd trm; rky.
27	12 00	do	3	W.H. Hayselden, WB. Felt by many; obs awakened; rpd trm N-S; rky.
31	12 50	Honomu	2	J.B. Oliver, WB. Felt by sev; rpd tms S-W; val.
	12 53	Kohala	2	B.D. Bond, WB. Felt by sev; grd trm; .fnt sounds before and during shock.
Aug.		**PORTO RICO**		
2	1 00	Bayamon		R.L. Junghams, WB. Felt by observer.
	1 15	Canovanas	2	A.R. Cochran, WB. Felt by sev.
	0 54	Comerio Falls	2	P.R.R.L. and P. Co., WB. Felt by few; grd rkg.
	0 50	Naguabo	2	M.A. Diaz, WB. Felt by sev; grd rkg E-W.
		VIRGIN ISLANDS		
	0 50	Fredericsted, St. Croix	4	O. Olsen, WB. Felt by obs; abr and sharp.
		HAWAII		
3	20 14	Haina	3	L. Hina, WB. Felt by many; abr bmp N-S about 2 s; rky.
	20 22	Hilo	3	C.E. Martin, WB. Felt by sev in all parts of city; pendulum clock on basement floor stopped at 20:43; grd swa N-NW.
	20 10	Honomu	3	J.B. Oliver, WB. Felt by many; rpd rkg; mts.
	20 10	Kohala		B.D. Bond, WB. Felt by obs; grd rkg 1/2 s; hls.

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

o.r.o. 11—9881

DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
Aug.		**HAWAII**		
(3)	- --	Pahala	5	Report from Waiokinu by W.H.H. Plaster on walls crk and thrown down.
	20 15	Waiokinu	5	W.H. Hayselden, WB. Felt by all; few alarmed; trees and telephone wire swa, stone walls fell down to S and SE; dishes on shelves displaced, some bottles thrown off, pictures displaced, clock pendulum swinging NE-SW stopped at 20:15; onset grd, then trm motion N to S.
		CALIFORNIA		
4	12 26	Los Angeles		P. Felt along coast for more than 50 mi
	13 08	District		from Ventura to Orange Co.; another dispatch reports shocks of sl intensity in Imperial Valley; not felt at Santa Barbara; windows rtl, furniture shifted; duration 10 to 45 s; in most places temblor appeared as 2 distinct shocks.
	- --	Anaheim		P. Felt.
	- --	Catalina Island		P. Felt.
	- --	El Centro		P. Felt? Reports contradictory.
	- --	Hollywood		P. Felt.
	- --	Imperial Valley		P. Sl intensity.
	- --	Long Beach		P. Felt.
	12 25	Pasadena	4	M.O. Corbin. Felt by many, few momentarily alarmed; while passing temporary wooden structure obs heard it pop and snap as if about to collapse; in one case milk in bottle shook E-W.
	12 25	do	4	P. Sharp shock felt in downtown business district; some excitement, a few awakened; bldgs sl rkd; gentle undulating wave lasting 20 s reported by WB office.
	12 22	Los Angeles (10 miles west of center)	4	D.H. Merrill. Felt by nr all; obs heard sash weight bmp; easy swa motion E-W; sl N-S motion at end, duration 15 s; heaviest shock since August, 1923.
	12 24	Los Angeles	4.	WB office. Felt by many; beds and furniture shk, drop lights swung N-S, many pendulum clocks stopped, all directions, one pendulum 18 inches long; rpd rkg trm N-S.
	12 22	do	5	P. Heavy shock distinctly felt in downtown office bldgs; greater portion of pop not aware of temblors; break in water main at Hope and Second Streets reported due to quake; shock "brought in" oil well in Alamitos Heights field, cement loosened at depth of 4800 feet, well spouted for hours.
	- --	San Bernardino		P. Felt.
	- --	Santa Monica		P. One of hardest hit.
	12 22	Santa Paula	4	C.C. Thomas, Mining Bureau. Felt by nr everybody; grd trm abt 30 s.
	- --	San Pedro		P. One of hardest hit.

International Seismological Centre

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

o.o. 11—9551

International Seismological Centre

DATE	TIME G. M. T.	LOCALITY	INTENSITY	SOURCE AND REMARKS
1927	h. m.			
Aug.		**CALIFORNIA**		
(4)	12 20	Van Nuys	4	J.S. Davis, WB. Felt by many, obs awakened; onset grd, motion slow and irregular but heavy, duration 10 s; fnt rmb rtl sounds possibly bef shock.
	- --	Venice		P. One of the hardest hit.
	12 25	Ventura	4	W.H. Duncan, WB. Felt by many; abr rkg W-E, duration 3 s.
		IDAHO		
7?		Moon National Park		P. Earth tremors dried up old springs in Moon National Monument Park; dry cave developed into subterranean lake; region entirely of volcanic origin.
		AT SEA		
10		7.6° N., 82.8° W.		Str. WILLIAM H. DOHENY reports seismic shock; vessel vibrated sharply as though striking heavily over a rky bottom; no apparent change in surface of sea; ship's time 20:00 on August 9.
		PANAMA		
	2 ?	Panama	3	P. Shock quite noticeable; no damage but a number of clocks stopped; lighter shock felt 5 h on morning of 10th; officials estimate origin 250 mi SW of Balboa.
		CALIFORNIA		
10	12 12	Eureka	4	J.M. Jones, WB. Felt by nr all, many alarmed; thought that shock crk chimney at Blue Lake causing destruction of house by fire sev days later; plaster crk sl in places, some clocks stopped; onset rpd, first shock rkg NE-SW, second following at sl interval was a bump followed by swa.
	12 12	Scotia	4	W.G. Corbit, WB. Many awakened; grd trm N-S; 3 shocks.
		TENNESSEE		
13	16 10	Tiptonville		M.R. Donaldson, WB. Felt by large number; many bldgs creaked; rpd trm motion
		CALIFORNIA		
14		Alpine		P. Sharpest temblors felt here, accompanied by rmb noise like distant explosion.
	- --	Jacumba		P. Two sharp jolts lasting from 1/4 to 1/2 m.
	- --	Oceanside		P. Noticed shock.
	14 48	Point Loma		C.M. Savage. Three light shocks, 5s apart; motion horizontal.

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

ero 11—0551

DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
Aug.		**CALIFORNIA**		
(14)	14 50	San Diego	4	WB office. Felt by many, few alarmed; onset rather abr; 2 shocks; fnt subterranean sounds.
	14 50	do	4	P. Felt; some sound sleepers not awakened.
		MASSACHUSETTS		
20		Boston, vicinity of	2	P. Series of rumblings and sl tremors felt.
		Quincy, Hingham, Dedham	3	P. Sev in Quincy reported rumblings strong enough to rtl windows; numerous telephone calls to newspapers, police and fire departments in 3 towns.
		CALIFORNIA		
20	20 07			BSSA. Shock did minor damage crk walls and chimneys ; reported felt at Eureka, Trinidad, Westport, CrescentCity and Scotia.
	20 05			Berkeley Seismological Station. Reported felt at the following places with intensity according to Rossi-Forel scale as indicated: Arcata, 8; Eureka, 8; Fortuna, 8; Waddington, 6; Fieldbrook, 5; Hoopa, 5; Table Bluff Lighthouse, 4-6; Capetown, 4; Dyerville, 4; Kneeland, 4; Trinidad, 4; Garberville, 3-4; Smith River, 3-4; Denny, 3; Orick, 3; Crescent City, 1-2; Fort Seward, 1-2; Mendocino, 1-2; Punto Gordo Light House, 1-2; Westport, 1-2.
	20 03	Humboldt Co.		P. Worst earthquake since 1906 felt from Punta Gorda to Crescent City and inland to Hoopa and Fort Seward.
	20 03	Arcata	8	C.H. Nixon. Felt by all except those riding in autos; people were generally panicky; bldgs swa, some crk, many chimneys fell, some twisted half-way around; drug and grocery stores suffered considerably from stock falling from shelves; goods on N and S walls damaged most, clock stopped in observer's house; motion was light at first, then abr tws jerk W to E; obs was in SW part of town where ground water is not over 3 ft. deep the year around; shock more severe but not as long as the 1906 earthquake at Arcata.
	- --	do	8	P. Panic stricken people sent flying from all bldgs; chimneys shattered; tank racks of Shell Oil Co., carrying oil, sank 6 in. into ground; well-built structures undamaged; dishes chipped, bottles upset and broken in many homes, mdse. rolled from shelves, plaster dropped from many walls, window in telephone office shattered; duration 15 s.

International Seismological Centre

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

o?o 11—0591

DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
Aug.		CALIFORNIA		
(20)	20 01	Cape Mendocino Light Station	4	P.S. Admiral. Felt by many, no alarm; many heard loose objects rtl; abr trm motion; 2 shocks abt 5 s each; fnt bmp sounds with shock.
	12 05	Crescent City	2	A. Popper. Very light shock felt by few (not felt at Light Station).
	20 10	Dyerville	4	R. Morton, P.M. Felt by many, no alarm; grd bmp motion; moderately ld sounds.
	20 07	Eureka	8	H.R. Bartlett. Many alarmed, some experienced difficulty in standing; many chimneys thrown to ground in E-W direction; many noted tightening and slacking of overhead wires; cracks in gravel and mud reported in Redwood Park; obs noted rocks in road 60 mi E of Eureka on following day apparently shk down by earthquake; also noted bubbles in Vandusen R. coming up through gravel; bar near bay entrance reported unusually rough; window facing E-W crk, hanging objects swa, some plaster thrown down, sev clocks stopped at 12:07; grd rkg ground motion ending in sharp jerk; duration 10 s; rmb sounds with shock.
	20 --	do		R.W. Bryan. Many alarmed; chimneys crk and shk out of line; plaster crk; first shock light ending in severe jerks; roaring sounds increased with swa of bldgs.
	20 07	do		B.W. Gregory. Many alarmed; drop light on 5 or 6 ft. chain swung E-W about 3 ft., clock in observer's home stopped (pendulum 12 in. long, swinging E-W); first shock grd, second abr bmp E-W; 5 and 2 s duration each; ld crk sounds.
	20 07	do	8	J.M. Jones, WB. Felt by all, general alarm, sev fainted; effect on obs on 10 ft. platform above roof similar to that of motion picture out of focus and flickering badly; bldgs swa alarmingly; brick bldgs suffered most, frame bldgs the least; 27 small breaks reported in city water pipes; moving autos shk as though bmp, some drivers stopped because of steering difficulties; one obs reports roughening of bay with distinct waves; pictures on N-S walls fell, plaster crk in bldgs of all classes, some doors jammed, practically all pendulum clocks stopped at 20:07; rpd trm motion followed by tws and bmp; 2 shocks at short intervals.
	20 07	do	8	J.M. Knox, Jr. Obs thrown off stool in hotel lobby in which sev women fainted and others screamed; shock started with violent sway ending with a loud roar and a jerky vertical movement; N-S movements; Far more violent than those felt in S. F. in Oct., 1926 (Monterey Bay shocks).

International Seismological Centre

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

apo 11—9581

International Seismological Centre

DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
Aug.		CALIFORNIA		
(20)	20 07	Eureka	8	P. Worst since 1906; sev women fainted on downtown thoroughfares, people fled from bldgs, a few suffered heart attacks; bldgs swa, many chimneys shattered, windows broken; Humboldt Co. courthouse probably the most damaged of any public bldg, damage confined to S front and SE corner of upper part of bldg, 3 rooms looked like "wreckage of a bomb", plaster came down and record books were thrown from racks, water department reported breaking of only 2 small service pipes in different parts of city; first-class structures undamaged; broken batteries impaired city's fire alarm system; walls in higher storied bldgs vibrated terrifically threatening to cave in; a linotype machine on separate foundation careened forward bruising operator's knees; drug stores report considerable loss on account of mdse. dropping off shelves; in one stock room fallen mdse. lay one foot deep in aisles; in houses and apartments considerable damage was caused by falling dishes and pictures; duration 15s. See report of H.R. Bartlett.
		Eureka, 60 mi east of		
20 --		Eureka, 30 mi east of	4	C.E. Bohanan. Barely noticed by obs motoring in mts; rmb sounds in timber, fnt roaring subterranean sounds.
- --		Ferndale	5	P. Severe shock; scant damage.
20 08		Fieldbrook	5	C.F. Swanson. Felt by all, alarm; rpd rkg motion; fnt subterranean sounds.
20 05		Fort Seward	2	A.D. Wilkinson, P.M. SI tremor felt by 2 or 3; not felt by obs who was walking.
20 05		Fortuna	5	C. Evers. Felt by all except those walking, some nervous, no alarm; bldgs creaked; shelf articles displaced; rkg motion probably E-W.
		do	6	P. Chimneys, glass, dishes shattered.
20 06		Freshwater	6	W.G. Corbitt, WB. Felt by nr all, few alarmed; chimneys thrown over, bldgs trees swa, logs rolled, water in tank disturbed, telephone line out of order; light cords swa, plaster loosened in some houses; grd rkg NS; shock stronger than at Scotia.
20 10		Garberville	2	A.L. Medcalf. SI shock felt by very few; grd trm motion.
19 45		Hoopa	4	C. Needham. Felt by many, general alarm; bldgs jarred as if by explosion, no damage; rpd rkg motion.
20 --		Kneeland	3	E.C. Mullen, P.M. Felt by many; bldgs creaked; rkg motion.
- --		Orick	2	J.C. Webster. Noticed by only a few; sl movement as though truck were passing; duration 6 or 7 s.

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

o.r.o. 11—9581

International Seismological Centre

DATE	TIME G. M. T.	LOCALITY	INTENSITY	SOURCE AND REMARKS
1927	h. m.			
Aug.		**CALIFORNIA**		
(20)	20 15	Punta Gorda Light Station		L.T. Martinez. Felt by obs sitting; abr trm; bmp sound.
	20 06	Scotia	7	P. Mdse. shk from shelves; chimneys, glass, dishes shattered.
		do	7	W.G. Corbitt, WB. 3 small water mains broken, 3 chimneys thrown over; cans thrown from shelves in grocery stores; grd E-W onset followed by violent rkg NS motion.
	20 07	Table Bluff Light Station	5	W. Evans. Felt by sev; bldg creaked; mantle on light broken; abr trm EW.
	20 08	Trinidad	3	E. Wiborg. Felt by 3 in light house, some doubtful; bldgs creaked and rtl; grd trm S.
	20 05	Waddington	4	I.C. Goff, P.M. Felt by many, few alarmed; bldgs swa; inside objects swa E-W; 8 inch clock pendulum stopped at 12:05; grd swa 15 s.
		AT SEA		
	20 05	40° 50.2 N. Lat. 124° 26.0 W.Long.		U. S. SEA LION, towing raft, felt heavy jar; calm smooth sea. Not felt at Alderpoint nor at St. George Reef 10 1/2 mi off shore.
		GUAM		
23	14 33	Agana	4	Felt by many; rpd trm, 5 shocks; duration 30, 35, 15, 10 and 5 s
		HAWAII		
23	20 10	Waiohinu	2	W.H. Hayselden, WB. Felt by sev; grd rkg N-S.
		CALIFORNIA		
26	12 40	Santa Barbara	4	P. 2 sharp shocks, one following immediately after other; first shock caused people to run out into streets, second lasted only a few s.
		CANADA		
30	"late"	Vancouver, B.C.	4	P. Tremor shook houses, rtl windows, dishes and furniture in greater Vancouver area; duration short; plainly audible rmb.
Sept.		**GUAM**		
2	8 57	Agana		Felt by many; abr trm, one shock; duration 1 m.

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

ere 11—0581

DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
Sept.		**CALIFORNIA**		
5	1 50	Yorba Linda	3	P.J. Ton, WB. Felt by sev; chandeliers swa sl; doors, windows rtl; grd trm NE-SW?; 2 shocks 1 s each.
		ARIZONA		
5	22 20	Yuma	3	WB office. Felt by sev who telephoned newspaper office; windows, dishes rtl; also felt in Imperial Valley 60 mi W.
		CALIFORNIA		
6	17 34	Eureka	3	J.M. Jones, WB. Felt by sev; single abr surge from W to E.
	17 34	Scotia	3	W.G. Corbitt, WB. Felt by sev; sl abr trm N-S like strong wind blowing against bldg.
16	8 40	Eureka	4	J.M. Jones, WB. Felt by all but soundest sleepers, some alarm; light fixtures swa; surface noises heard by many.
18	2 00	Bakersfield		P. 2 distinct shocks felt.
	2 10	Bishop		W. Barth, WB. Grd rkg motion lasted 5 s.
	2 05	do	6	P. Extremely severe, dinner interrupted in many houses; concrete bldgs rkd from side to side; sev brick chimneys knocked down; numerous large windows crk or broken; dishes rtl; did not "spill soup or scatter food"; duration more than 10 s.
	2 08	Fresno	4	W.E. Bonnet, WB. Felt by many, obs felt bldg swa; pictures rtl and swa along walls; grd swa motion NS to SW; series of shocks lasting 20 s.
	- --	do	5	P. 3 distinct shocks varying in intensity; in one bldg people made "unexplainable efforts" to reach street; one person slipped off edge of bed, one knocked his head against wall while leaning over to wash; in one case curtains swung 6 in from wall.
	- --	Hanford	3	P. Windows, dishes rtl; door moved.
	2 10	Stockton	4	P. Distinct shock felt; doors, windows rtl sev s.
	- --	Balch Camp, Big Creek, Bass Lake	5	P. Severe shocks felt; bldgs rkd severely; pictures knocked from walls.
	- --	Auberry, Clovis, Kingsbury, Porterville, Sanger, Selina		P. Felt.
	- --	Mono Lake		Berkeley report.
		NEVADA		
	2 08	Mina	4	P. Felt quite plainly.
	- --	Tonopha	4	Berkeley report.

International Seismological Centre

TABLE I.—NONINSTRUMENTAL EARTHQUAKE REPORT

o7o 11—0531

DATE	TIME G. M. T.	LOCALITY	INTEN-SITY	SOURCE AND REMARKS
1927	h. m.			
Sept.		**BRITISH COLUMBIA**		
19	14 22	Victoria		Reported felt in Victoria.
		PORTO RICO		
27	7 45	Aguirre	3	P. Raspaldo, WB. Felt by sev, few alarmed; grd trm motion; whistling sounds.
	7 25	Barros	3	O. Santiago, WB. Felt by many; abr trm motion.
	7 41	Bayamon	2	R.L. Junghams, WB. Light shock felt by observer.
	7 45	Canovanas		A.R. Cochran, WB. Felt by observer.
	7 30	Comerio Falls	4	P.R.R.L. and P. Co., WB. Felt by 3/4 pop; obs awakened; trm motion 10 s; roaring sounds during shock.
		HAWAII		
28	2 30	Honomu	4	J.B. Oliver, WB. Felt by many; grd tws motion for 1 s.

Telegraphic press dispatches were received through the courtesy of Rev. F. A. Tondorf, S.J., Director of the Georgetown University Seismological Observatory.

Table Ia. Earthquakes of intensity V and over (Rossi-Forel Scale)

Date			Time	Locality	Epicenter		Area	Inten-
Year	Mo.	Day	G.M.T.		Lat.	Long.	sq. mi.	sity
			h. m.		°	°		
1927	July	16	2 02	California	32.8 N	115.6 W	300	5
	Aug.	4	12 25	California	34.0 N	118.3 W	5000	5
	Aug.	20	20 05	California	40.8 N	124.1 W	6000	8
	Sep.	18	2 08	California	37.3 N	119.0 W	50000	6

International Seismological Centre

Table II. Instrumental Reports.

NOTATION.

Beginning July 1, 1925, the notations used in instrumental reports of the Coast and Geodetic Survey will be those adopted by the International Seismological Association with modifications suggested by Rev. James B. Macelwane, S.J., and others.

1. Character of earthquake recorded:

I. Slight. II. Moderately strong. III. Violent.

d Local shock (origin less than 100 kilometers distant).

v Near shock (origin from 100 to 1000 kilometers distant).

r Distant shock (origin from 1000 to 5000 kilometers distant).

u Very distant shock or teleseism (origin more than 5000 kilometers distant).

2. Wave groups or phases:

P Normal first preliminary tremors; longitudinal waves that have passed below the continental layer.

$\overline{P}$ Individual or upper first preliminary tremors whose path lies wholly in the continental layer.

P' Longitudinal waves that have traversed the earth's core.

$R_1\overline{P}$ Upper first preliminary tremors reflected from the lower boundary of the continental layer.

$R_2\overline{P}$ Upper first preliminary tremors reflected from the upper surface of the continental layer.

PR_1 Longitudinal waves reflected once at the earth's surface.

PR_2 Longitudinal waves reflected twice at the earth's surface.

PR_3 Longitudinal waves reflected three times at the earth's surface.

P_cP Longitudinal waves reflected from the outer surface of the earth's core.

S Normal second preliminary tremors; transverse waves that have passed below the continental layer.

$\overline{S}$ Individual or upper second preliminary tremors whose path lies entirely in the continental layer.

$R_1\overline{S}$ Upper second preliminary tremors reflected from the lower boundary of the continental layer.

$R_2\overline{S}$ Upper second preliminary tremors reflected from the upper surface of the continental layer.

PS Waves transformed from longitudinal to transverse oscillation, or vice versa, through one reflection at the earth's surface being either PS or SP in true character.

International Seismological Centre

Table II. Instrumental Reports.

NOTATION

International Seismological Centre

2. Wave groups or phases: (continued)

PPS	Waves which have traversed two legs of their twice reflected paths as longitudinal and one leg as transverse waves, being PPS, PSP, or SPP in true character since these all have the same travel time.
SR_1	Normal transverse waves reflected once at the earth's surface.
SR_2	Normal transverse waves reflected twice at the earth's surface.
SR_3	Normal transverse waves reflected three times at the earth's surface.
S_cS	Normal transverse waves reflected from the outer surface of the earth's core.
$\overline{S_cP_cP}$	Waves which start with transverse vibration but on refraction into the core are changed to longitudinal, or which start as longitudinal and are refracted out as transverse.
$\overline{S_cP_cS}$	Waves which traverse the mantle at both ends with transverse vibration but are refracted through the core with longitudinal oscillation.
$\overline{S_cP_c}\overline{P_cS}$	Waves which traverse the mantle with transverse vibration, are refracted through core as longitudinal waves, and are reflected internally on its farther side.
L	Long waves of irregular form at the beginning of the surface phase or "main phase". See supplementary note.
M	Shorter and more regular waves of large amplitude in the surface group which travel more slowly than the L waves.
M_1, M_2, etc.	Individual waves of relatively great amplitude in the surface phase and usually in the M group.
C	Waves of the tail or end portion.
W_2	Surface waves traveling around the major arc to the station.
W_3	Surface waves returning to the station after a complete circuit of the globe.
F	End of discernible movement.

3. Nature of the Motion: (See also Supplementary Notations on next page.)

i	Impulsive and sharply defined beginning of a phase.
e	Poorly defined emergence of a phase.
A	Either (a) amplitude of earth motion measured from the position of equilibrium in microns (1 micron 1/1000 mm.), toward the north, east, or zenith, - toward the south, west, or nadir; or (b), when so marked, the trace amplitude or half range of movement of the pen on the record measured from the median line in millimeters.

Table II. Instrumental Reports.

NOTATION

3. Nature of the Motion: (continued)

A_E E-W component of A.

A_N N-S component of A.

A_Z Vertical component of A.

T Period of wave.

4. Deduced Data:

O Time of earthquake at epicenter (O_1 according to Klotz's tables; O_2 according to Macelwane's tables).

Arcual distance from the station to the epicenter. (Subscript references same as for O.)

5. Constants of Seismograph:

T_o Free or undamped period of the seismograph.

V Static magnification.

ϕ Ratio of successive damped amplitudes.

r Half width of zone within which friction will completely arrest the recording pen.

h Altitude of observatory above sea level.

Supplementary Notations.

Lq Surface (Love) waves of transverse type in which the earth particle oscillates in the horizontal plane perpendicular to the direction of propagation.

Lr Surface (Rayleigh) waves in which the earth particle describes a circuitous path in a vertical plane in the line of propagation. The horizontal motion in the line of propagation is approximately two-thirds of the vertical motion.

In this report phases are designated as above either (1) when the amplitudes on the two horizontal components point definitely to transverse or longitudinal motion, or (2) more particularly in the case of Honolulu, when the travel times correspond to established velocities over Pacific paths, approximately 4.5 km. per second for Lq and 4.0 km. per second for Lr. Seismographic records indicate the existence of several groups of waves of each type.

? An interrogation mark (?) before a phase indicates that the existence of a new phase is questioned. A similar mark after a phase indicates that the phase interpretation is questioned.

f An interference. n an emergence of nodal character.

International Seismological Centre

Table II. Instrumental Reports.

BALBOA HEIGHTS, Canal Zone.

The Panama Canal,
R. Z. Kirkpatrick, Chief Hydrographer, In Charge.

Lat. 8° 57.'6 N. Long. 79° 33.'5 W. h, 36 m.

International Seismological Centre

Instrument	Component	Mass	T_o	V		
Bosch-Omori	EW	100 kg.	20 s.	35		
do	NS	100 kg.	do	35		

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
July						Nothing recorded in July.
Aug. 10	P_E	1 36 00				Recording pen off on both components during L_1 phase.
	P_N	1 35 36				
	S_E	1 36 40				
	S_N	1 36 26				
	L_{1E}	1 36 51				
	M_{1E}		20	800*		
	L_{1N}	1 36 34				
	M_{1N}		20		800*	
	F	2 26				
Aug. 10	P_E	9 54 40				
	P_N	9 54 36				
	S_E	9 55 18				
	S_N	9 55 00				
	L_{1E}	9 55 34				
	M_{1E}	9 55 37	20	22*		
	L_{1N}	9 55 12				
	M_{1N}	9 55 15	20		26*	
	F	9 01.6				
Aug. 10	P_E	17 58 54				
	P_N	17 58 54				
	S_E	17 59 26				
	S_N	17 59 30				
	L_{1E}	17 59 40				
	M_{1E}	17 59 42	20	22*		
	L_{1N}	17 59 44				
	M_{1N}	17 59 46	20		28*	
	F	18 08 30				
Aug. 20	P_E	23 56 13				Pen off drum on both components.
	P_N	23 56 15				
	S_E	23 56 57				
	S_N	23 57 03				
	L_{1E}	23 57 09				
	M_{1E}					
	L_{1N}	23 57 43				
	M_{1N}	23 57 47				
	F	0 45				

* indicates trace amplitude in one-tenth millimeters.

Table II. Instrumental Reports.

BALBOA HEIGHTS, Canal Zone.

The Panama Canal,
R. Z. Kirkpatrick, Chief Hydrographer, In Charge.

International Seismological Centre

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Aug. 21	P_E	10 20 51				
	P_N	10 20 55				
	S_E	10 21 41				
	S_N	10 21 43				
	L_{1E}	10 21 51				
	M_{1E}	10 22 27	20	80*		
	L_{1N}	10 22 09				
	M_{1N}	10 22 21	20		30*	
	F	10 40 00				
Aug. 22	P_E	2 53 24				
	P_N	2 53 12				
	S_E	2 54 16				
	S_N	2 54 02				
	L_{1E}	2 54 22				
	M_{1E}	2 54 46	20	35*		
	L_{1N}	2 54 26				
	M_{1N}	2 55 02	20		20*	
	F	3 04				
Sept. 12	P_E	21 06 38				Record on NS too weak to interpret.
	S_E	21 06 51				
	L_{1E}	21 06 58				
	M_{1E}	21 07 01	20	5*		
	F	21 09 50				

* indicates trace amplitude in one-tenth millimeters.

Table II. Instrumental Reports. Harvard Seismograph Station.

CAMBRIDGE, Massachusetts. K. F. Mather, In Charge.

Lat. 42° 22.'6 N. Long. 71° 07.'0 W. h, 5 m.

International Seismological Centre

Instrument	Compo-nent	Mass	T_o	V		
Bosch-Omori	EW, 3°S	100 kg.	10 s.	80		
do	NS, 3°E	100 kg.	15 s.	50		

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
July						Nothing recorded in July.
Aug. 6	e_E	0 36 59	10	4		
	e_N	0 37 04	9		5	
	e_E	0 42 47	6	1		
	e_N	0 43 32	10		1	
	e_N	0 52 52	6		1	
	eL_{1E}	1 02.0				
	M_{1E}	1 06.6	26	9		
	eL_{1N}	1 00.1				
	M_{1N}	1 08.0	23		5	
	F	1 24				
Aug.10	P_E	1 42 42	4	1		
	iP_N	1 42 56	4		8	
	e_E	1 43 56	3	1		
	ePR_N	1 44 17	10		15	
	e_E	1 48 26	6	3		
	i_N	1 48 43	8		5	
	e_N	1 52 45	17		16	
	eL_{1E}	1 50.8				
	M_{1E}	1 56.2	19	5		
	eL_{1N}	1 56 12				
	M_{1N}	1 58.0	18		20	
	F	2 18				
Aug.10	e_E	11 59 06	5	1		
	e_N	11 59 23	6		1	
	e_N	12 10 15	16		2	
	$?e_E$	12 16 18				
	e_N	12 16.2	17		5	
	eL_{1E}	12 46.0				
	M_{1E}	12 48.5	23	1		
	eL_{1N}	12 35 23				
	M_{1N}	12 44 35	28		8	
	F	13 23				
Aug.18	e_E	20 21 41				
	$?e_N$	20 23 20				
	M_{1E}	20 23.7	22	4		
	M_{1N}	20 37.3	16		11	
	F	20 47				
Aug.21	iP_E	0 02 10	9	10		
	$?eP_N$	0 02 00	5		1	

(continued)

* indicates trace amplitude in one-tenth millimeters.

Table II. Instrumental Reports. Harvard Seismograph Station.

CAMBRIDGE, Massachusetts. K. F. Mather, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Aug.21		(continued)				
	iPR_{1E}	0 04 39	10	23		
	eS_E?	0 07 40	11	4		
	e_N	0 07 58	10		5	
	iS_E	0 08 08	12	66		
	eL_{1E}	0 12 28				
	M_{1E}	0 18 33	16	31		
	F	0 57				
Sept. 3	O_1	19 50 01				Δ = 4360 km.
	O_2	19 49 49				Δ = 4522 km.
	iP_E	19 55 46	3	1		
	iP_N	19 55 44	4		1	
	iPR_{1E}	19 57 19	4	1		
	iPR_{1N}	19 57 17	4		1	
	e_E	19 59 00	4	1		
	e_E	20 01 00	4	1		
	eS_E	20 01 54	15	3		
	iS_N	20 01 51	15		24	
	eL_{1N}	20 04 45				
	M_{1N}	20 06.0	16		20	
	F	20 29				
Sept.11	eP_E	22 28 14	3	1		
	eP_N	22 27 48	3		1	
	eS_E	22 36 58	6	1		
	eS_N	22 36 58	5		1	
	eL_{1E}	22 50 34				
	M_{1E}	22 58.0	16	3		
	eL_{1N}	22 49.0				
	M_{1N}	22 56.0	18		10	
	F	23 20				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

CHELTENHAM, Maryland. G. Hartnell, In Charge.

Lat. 38° 44' N. Long. 76° 05.5 W. h, 72 m.

International Seismological Centre

Instrument	Compo-nent	Mass	T_o	V		
Bosch-Omori	EW	10 kg.	15 s.	10	Undamped	
do	NS	do	15 s.	10	do	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
						No earthquakes recorded during July.
Aug. 10	e_E	1 37 39				
	M_{1E}	1 41 50	17	21		
	e_N	1 43 56	4		1	
	$?e_N$	1 46.4				
	eL_{1N}	1 51.0				
	M_{1N}	1 54.0	16		3	
	F	2 07				
Aug. 20	e_E	23 56 33	12	1		Time uncertain on both components.
	e_E	23 57 47	10	5		
	e_E	23 59.9				
	M_{1E}	0 03 11	19	16		
	$?e_N$	0 02 30	4		1	
	eS_N	0 06 44	10		2	
	eL_{1N}	0 09 44				
	F	0 29				
						No earthquakes recorded during September.

* indicates trace amplitude in one-tenth millimeters.

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U. S. Weather Bureau.

Lat. 41° 47' N. Long. 87° 37' W. h, 180 m.

Instrument	Compo-nent	Mass	T_o	V	ϵ	
Milne-Shaw	EW	1 lb.	12 s.	150	20:1	
do	NS	1 lb.	12 s.	150	20:1	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
July 1	O_1	8 19 20				
	O_2	8 19 29				
	eP_E	8 30.7				
	eP_N	8 31 00				
	ePR_{1N}	8 34.2				
	ePR_{2E}	8 36.3				
	e_N	8 38.3				
	iS_E	8 40 39	12	10		
	iS_N	8 40 38	12		9	
	eSR_{1E}	8 45.5				
	eL_{1E}	8 52.5				
	iL_{1N}	8 53.0				
	eL_{2E}	8 57.0				
	M_{2E}	8 58.1	27	8		
	eL_{2N}	8 57.0				
	M_{2N}	8 58.0	25		4	
	F	9 40				
July 1	e_E	22 07.4				
	eL_{1E}	22 11.4	11	7		
	M_{1E}	22 13	60?	13		
	e_N	22 11.4				
	F	22 29				
July 7	eL_{1E}	3 26 58				
	M_{1E}	3 27.4	25	19		
	eL_{1N}	3 26.7	10		5	
	F	3 38.0				
July 11	e_N	23 52.2				
	e_E	23 52.7				
	F	24 05				
July 12	eP_E	21 20 41				
	eP_N	21 20 37	3		1	
	ePR_{1E}	21 23 22				
	ePR_{1N}	21 23 21	8		1	
	L,S_E?	21 30.2	7	5		
	L,S_N?	21 30.2	9		6	
	F	22 10				
July 14	e_N	13 10.8				
	e_E	13 10 49				
	eL_{1E}	13 18 34				
	M_{1E}	13 18 48	10	5		

(continued)

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U. S. Weather Bureau.

International Seismological Centre

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
July 14		(continued)				
	eL_{1N}	13 15.8	9			
	M_{1N}	13 18.3	9		4	
	F	13 30				
July 14	ePR_{1N}?	23 36 44	6		1	
	eS_E?	23 43 56	13	1		
	eS_N?	23 43 56	8		2	
	e_E	23 48.3	13	4		
	e_N	23 50.3	10		1	
	eL_{1E}	23 52.4				
	M_{1E}	23 52 38	15	5		
	eL_{1N}	23 52.3				
	M_{1N}	23 56.8	20		4	
	F	24 17				
July 15	e_E	18 47.4	10	3		
	e_N	18 48.2				
	eL_{1E}	18 51.4				
	M_{1E}	18 52 06	20	5		
	F	19 01				
July 18	e_E	11 39 05	5	1		
	e_E	11 46 04				
	eS_E?	11 48 40	10	5		
	e_E	11 53.7				
	e_E	11 59 10				
	e_N	12 10.8				
	e_N	12 19.0	20		2	
	eL_{1E}	12 12.5				
	M_{1E}	12 17.5	19	3		
	F	12 37				
July 22	e_E	4 19.1				
	e_N	4 19 15				
	eSR_{2E}	4 34.1				
	eL_{1E}	4 42.5	25			
	M_{1E}	4 46.8	27	5		
	eL_{1N}	4 41.5				
	M_{1N}	4 50.6	21		4	
	F	5 48				
July 23	e_E	21 02.7				Weak activity.
	e_N	21 13.2				
	F	21 44				
July 23	e_E	23 43.2				Nothing on NS.
	F	23 48				
July 28	O_1	16 17 56				Δ_1= 4935 km.
	O_2	16 17 48				Δ_2= 5044 km.
	eP_E	16 26 20	4	1		
	eP_N	16 26 20	6		1	
	ePR_{1E}	16 28 00	7	1		
	ePR_{1N}	16 28 08	4		1	
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U. S. Weather Bureau.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks.
1927		h. m. s.	s.	*	*	
July 28		(continued)				
	S_E	16 32 56	6	8		
	S_N	16 33 02	7		5	
	eSR_{1E}	16 35 56	12			
	iSR_{1N}	16 36 07	8		4	
	eL_{1E}	16 40.3	26	6		
	L_{1N}	16 40.2				
	M_{1N}	16 43.1	15		15	
	L_{2E}	16 42 53				
	M_{2E}	16 43 10	17	18		
	M_{3E}	16 46 08	20	16		
	F	17 35				
Aug. 1	e_N	17 35.1	18		3	
	e_E	17 35.4	18	4		
	eL_E?	17 41.2				
	M_{1E}	17 42.4	15	9		
	eL_N?	17 39.4				
	M_{1N}	17 42.9	16		10	
	F	18 30				
Aug. 5	O_1	21 13 04				Δ_1 = 9580km.
	O_2	21 13 06				Δ_2 = 9533km.
	eP_E	21 25 46	6	1		
	eP_N	21 25 44	9		1	
	ePR_{1N}	21 29.3	7		1	
	iS_E	21 36 24	13	25		
	iS_N	21 36 23	13		19	
	eSR_{1E}	21 42 20	17	11		
	eSR_{1N}	21 42 18	15		10	
	?e_E	21 48.6	18	5		
	e_N	21 49.2				
	L_{1E}	21 54.1				
	M_{1E}	22 00.0	21	16		
	L_{1N}	21 53.7				
	M_{1N}	21 54.4	27		14	
	M_{2N}	22 03 30	20		17	
	F	23.4				
Aug. 6	O_1	0 13 57				Δ_1 = 5000km.
	O_2	0 13 50				Δ_2 = 5100km.
	eP_E	0 22 24				
	eP_N	0 22 26				
	ePR_{1N}	0 24 24				
	eS_E	0 29 08	7	7		
	S_N	0 29 07	7		4	
	iSR_{1E}	0 32 15				
	e_N	0 31 14	7		2	
	e_E	0 36.6				
	e_N	0 36.8				
	eL_{1E}	0 38.6				
	M_{1E}	0 39.3	14	14		
	L_{1N}	0 38 57				
	M_{1N}	0 39.3	16		15	
	F	1 36				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U. S. Weather Bureau.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks.
1927		h. m. s.	s.	*	*	
Aug. 10	O_1	1 35 01				Δ_1 = 3920 km.
	O_2	1 34 46				Δ_2 = 4100 km.
	P_E	1 42.2				
	iP_N	1 42 13	5		7	
	iPR_{1N}	1 43 39	7		7	
	iS_E	1 47 41	10	20		
	eS_N	1 47 56				
	iSR_{1E}	1 49 42				
	e_E	1 50 36	12	85		
	eL_{1E}	1 51 36				
	M_{1E}	1 55.1	18	115		
	eL_{1N}	1 52 03				
	M_{1N}	1 54.5	20		20	
	M_{2N}	1 56.3	19		35	
	F	3.1				
Aug. 10	eP'_N	11 56 57	10		2	
	eP'_E	11 56 58	11	3		
	PR_{2E}	12 02 13				
	ePR_{2N}	12 02.2				
	e_N	12 03 56	13		5	
	ePS_E	12 08 39	19	5		
	eSR_{1E}	12 14.0				
	e_N	12 26.5				
	eL_{1E}	12 35.2				
	M_{1E}	12 43.3	21	29		
	eL_{1N}	12 35.4				
	M_{1N}	12 41.2	24		27	
	F	14.3				
Aug. 10	e_E	18 13.3	10	1		Nothing on NS.
	e_E	18 17.3	17	3		
	F	18 24.3				
Aug. 11	e_E	8 15.3	13	1		
	eL_{1N}?	6 15.8	16		1	
	F	8 37				
Aug. 18	?e_N	19 41.9				
	ePR_{1E}	19 44 38	9	1		
	eS_E	19 51 53	12	9		
	$eS_oP_cS_N$	19 51 38	7		5	
	eSR_{1E}	19 58 08	12	6		
	eSR_{1N}	19 58.4	11		5	
	eL_E?	20 09 53	21	6		
	eL_{1E}	20 16.4				
	M_{1E}	20 22 28	20	19		
	L_{1N}	20 18 46				
	M_{1N}	20 19.9	20		15	
	F	22.1				
Aug. 20	eS_E	20 18.5	10	1		
	eS_N	20 18.4	14		1	
	eL_{1E}	20 22.3				
	M_{1E}	20 27.0	10	3		
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U. S. Weather Bureau.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Aug. 20		(continued)				
	eL_{1N}	20 19 43				
	M_{1N}	20 20.3	17		5	
	F	20 32				
Aug. 20	O_1	23 54 23				Δ_1 = 3900 km.
	O_2	23 54 10				Δ_2 = 4089 km.
	P_E	0 01 34	6	4		
	iP_N	0 01 34	6		7	
	iPR_{1N}	0 02 49	9		11	
	e_N	0 06 33				
	iS_E	0 07 15	13	20		
	S_N	0 07 16	10		20	
	L_{1E}	0 09 32				
	M_{1E}	0 15.4	16	153		
	L_{1N}	0 09.7				
	M_{1N}	0 13.4	10		40	
	M_{2N}	0 17.4	18		48	
	F	2.1				
Aug. 21	eP_N	10 17 42	7		1	
	eL_{1E}	10 34 12				
	M_{1E}	10 35.9	12	7		
	eL_{1N}	10 35.3	14		4	
	F	10 59				
Aug. 22	e_E	3 07.7	11	1		
	$?e_N$	3 09 24				
	eL_{1E}	3 12.7				
	M_{1E}	3 13.4	15	3		
	eL_{1N}	3 12.7	20		1	
	F	3 27				
Aug. 23	eS_E	6 53.0	10	3		NS record lost.
	eL_{1E}	7 19.0	20	1		
	eL_{2E}	7 30.6	13	3		
	F	8 16				
Aug. 24	eL_{1E}	19 03.1	30	1		NS record lost.
	M_{1E}	19 13.2	17	5		
	F	19 26				
Sept. 3	O_1	19 47 40				Δ_1 = 5435 km.
	O_2	19 47 34				Δ_2 = 5522 km.
	P_E	19 56 37	5	4		
	P_N	19 56 35	5		2	
	ePR_{1E}	19 58 28	5	3		
	S_E	20 03 41	19	35		
	S_N	20 03 43	13		18	
	eSR_{1E}	20 06.9	13	12		
	eSR_{1N}	20 06.9				
	eSR_{2E}	20 07.9	23	5		
	L_{1E}	20 10 55				
	M_{1E}	20 15.1	13	17		
	eL_{1N}	20 08.1				
	M_{1N}	20 08 28	19		14	
	F	21 25				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U. S. Weather Bureau.

International Seismological Centre

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Sept. 7	e_E	21 10.3	19	1		
	e_N	21 10.6				
	M_{1N}	21 13.8	17		3	
	F	21 48				
Sept. 11	O_1	22 15 53				Δ_1 = 8890 km.
	O_2	22 16 01				Δ_2 = 8744 km.
	P_E	22 28 00	6	1		
	P_N	22 28.0	7		1	
	eS_E	22 38 05	13	7		
	eS_N	22 37 50	10		4	
	eSR_{2N}	22 46.6	20		5	
	e_E	22 48.8				
	e_N	22 50.3	45?		5	
	eL_{1E}	22 55.4				
	M_{1E}	23 05.6	14	20		
	eL_{1N}	22 56.0				
	M_{1N}	22 57.8	29		10	
	F	24.2				
Sept. 12	e_N	3 29.8				
	e_E	3 30.2				
	iL_{1E}?	3 30 47				
	M_{1E}	3 30 55	13	4		
	eL_{1N}?	3 30 49	13		4	
	F	3 42				
Sept.12	e_E	3 58.5				
	e_N	4 04.2				
	eL_{1E}?	4 07 24	15	2		
	eL_{1N}?	4 08.0	15		2	
	F	4 30				
Sept.12	e_E	15 04.5				Possibly a continuation of the preceding earthquake.
	e_N	15 06.5				
	eL_{1E}	15 10.4	15	3		
	eL_{1N}	15 11.9	16		1	
	F	15 26				
Sept.17	e_E	1 38.0				
	e_N	1 39 32				
	eL_{1E}	1 38.3	7	4		
	eL_{1N}	1 40 47	11		5	
	F	1 43.5				
Sept.18	e_E	2 16 47	10	5		
	L, eSR_{1E}	2 20 51	6	3		
	eL, SR_{1N}	2 20.0				
	M_{1N}	2 20 57	8		7	
	eL_{1E}	2 21 41				
	M_{1E}	2 22 17	9	10		
	F	2 29				
Sept.23	iPS_N	14 18 20	3		1	
	eL_{1E}	14 40.1	12	1		

(Continued)

* indicates trace amplitude in one-tenth millimeters.

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U. S. Weather Bureau.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Sept.23	eL_{1N}	14 45.1	17		1	
	eL_{2E}	14 48.3				
	M_{2E}	14 56.7	14	5		
	eL_{2N}	14 50.7				
	M_{2N}	14 55.7	15		5	
	F	15 25				
Sept.24	e_N	18 08.1	13?		1	
	eL_{1E}	18 11.1				
	M_{1E}	18 14.9	18	5		
	eL_{1N}	18 14.1				
	M_{1N}	18 14.9	17		5	
	F	18 32				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. Weather Bureau, Philippine Islands.

GUAM, Marianne Islands. W. W. Rowley, In Charge.

Lat. 13° 28.'3 N. Long. 144° 44.'9 E. h, 5 m.

Instrument	Compo-nent	Mass				
Wiechert inverted pendulum	EW	180 kg.				

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
July 5	e	1 15 12				NS vibration.
17	e	18 49 30				EW " Local intensity III.
17	e	19 15 00				EW vibration.
18	e	5 23 30				NS vibration. Local intensity II.
19	e	10 09 50				EW vibration.
24	e	7 34 00				EW vibration. Local intensity II.
27	e	12 21 30				EW vibration.
27	e	12 53 45				NS vibration.
27	e	14 07 15				EW "
27	e	15 02 45				NS "
31	e	15 39 45				NS "
Aug. 7	e	19 56 30				EW vibration.
9	e	21 41 00				EW "
19	e	4 34 00				NS "
23	e	14 32 50				NS vibration. Local intensity IV.
23	e	21 21 50				EW vibration.
24	e	12 12 30				NS "
26	e	6 39 25				EW "
Sept. 2	e	8 57 20				EW vibration. Local intensity II.
12	e	8 47 00				EW vibration.
25	e	9 21 50				EW "
25	e	13 50 45				EW "

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

HONOLULU (University), Hawaii. J. H. Peters, In Charge.

Lat. 21° 18!2 N. Long. 157° 49!3 W. h, 15 m.

Instrument	Component	Mass	T_o	V	∈	Sensitivity
Milne-Shaw	EW	1 lb.	12.0 s.	150	about	23.5 mm.
do	NS	1 lb.	12.0 s.	150	20:1	28.8 mm.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
July 3	O_1	10 37 40				Δ_1 = 4210 km.
	O_2	10 37 27				Δ_2 = 4367 km.
	eP_E	10 45 12	6	6		
	eP_N	10 45 10	6		2	
	iS_E	10 51 11	8	11		
	eS_N	10 51.0	8		6	
	eL_{1E}	10 53.8	8			
	M_{1E}	10 55 18	13	14		
	eL_{1N}	10 55.0	11			
	M_{1N}	10 55 25	13		10	
	M_{2E}	10 58.1	10	11		
	M_{2N}	10 58 10			11	
	F	11.6				
July 5	eL_E?	7 40.6				
	M_{1E}	7 41.7	11	5		
	eL_N?	7 41.3				
	M_{1N}	7 42.4	12		5	
	e_E	7 44.0	10	4		
	eL_N?	7 44.8	11		6	
	F	7 49				
July 6	eL_{1E}	21 43.0				
	M_{1E}	21 43.5	7	6		
	eL_{1N}	21 42.4				
	M_{1N}	21 44.5	7		11	
	F	21 51				
July 7	i_N	13 52 17				Local shock; very rapid
	F	13 53 00				activity.
July 10	e_E	4 16.8	10	3		No activity identifiable
	eL_{1E}	4 24.5	22	5		on NS.
	F	4.5				
July 11	e_E	13 51.0				Very weak activity.
	e_N	13 54.3				
	F	14 39				
July 12	iS_E?	21 24 14	12	8		
	iS_N?	21 24 10	8		17	
	e_E	21 26.5	10	10		
	eL_{1E}	21 30.0				
	M_{1E}	21 30.2	10	7		
	eL_{1N}?	21 30.0				

(continued)

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

HONOLULU (University), Hawaii. J. H. Peters, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
July 12		(continued)				
	M_{1N}	21 30.7	11		10	
	eL_{2E}	21 38.6	18	10		
	eL_{2N}	21 32.5				
	M_{2N}	21 34.5	12		10	
	F	21.8				
July 14	eL_E?	13 15.4	7	4		
	eL_N?	13 15.3	10		3	
	F	13 27				
July 15	eLQ_E	0 06.0				Preliminary phases lost during change of paper.
	M_{1E}	0 06 38	7	12		
	eLQ_N	0 06.0				
	M_{1N}	0 06 42	7		13	
	eLr_E	0 07.7				
	M_{1E}	0 08.2	6	16		
	eLr_N	0 07.7				
	M_{1N}	0 08.6	6		26	
	F	0.6				
July 15	e_E	19 07.2				Nothing on NS.
	F	19 18				Weak activity. Seismic?
July 16	e_N	20 53 23				Local. Quarry blast.
	i_E	20 53 28				
	i_N	20 53 36				
	F	20 54.0				
July 18	e_E	5 51.9	10	1		
	e_N	5 52.0	10		1	
	F	6.0				
July 18	O_1	11 19 45				Δ_1 = 6515 km.
	O_2	11 19 44				Δ_2 = 6522 km.
	iP_E	11 29 47	4	8		
	iP_N	11 29 45	6		10	
	eS_E	11 37 50	7	14		
	iS_N	11 37 50	13		11	
	eSR_{2E}	11 44.2				
	eSR_{2N}	11 44.0				
	eL_{1E}	11 44 40	10	6		
	eL_{1N}	11 44.7	10		7	
	eL_{2N}	11 47.6				
	M_{2E}	11 48.8	14	8		
	$eL2_N$	11 48.6	10			
	M_{2N}	11 49.5	13		10	
	F	12.2				
July 18	i_{EN}	1 15 17				Local. Quarry blast.
	F	1 16 00				
July 22	e_N	4 55.5	25		7	
	eL_{1E}	5 01.4				
	M_{1E}	5 04.5	10	10		
	eL_{1N}	5 01.0	30		6	
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

HONOLULU (University), Hawaii. J. H. Peters, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
July 22		(continued)				
	M_{1N}	5 05.5	18		15	
	M_{2N}	5 09.6	17		14	
	F	5 25				
July 28	O_1	16 17 44				Δ_1 = 3630 km.
	O_2	16 17 28				Δ_2 = 3833 km.
	P_N	16 24 34	8		5	
	e_E	16 25.6				
	eS_E	16 29 52	7	5		
	S_N	16 30 00	18		7	
	e_E	16 32.1				
	eL_{1E}	16 32 38	12			
	M_{1E}	16 34.0	10	38		
	eL_{1N}	16 33.4	20			
	M_{1N}	16 36.3	9		56	
	F	17.9				
July 30	iP_E	3 23 20	1	14		Local shock. Quarry blast.
	iP_N	3 23 21	1		35	
	F	3 24.0				
July 31	eP_E	12 44 19	1	9		Local shock. Quarry blast.
	iP_N	12 44 20	1		24	
	F	12 45.0				
Aug. 1	e_E	17 20 44				
	eL_{1E}	17 21 08				
	M_{1E}	17 21 50	12	20		
	eL_{1N}	17 21 10	11			
	M_{1N}	17 22.4	11		20	
	F	18 33				
Aug. 1	e_E	18 58.7				
	e_E	19 00.7				
	eL_{1E}	19 01 20	13			
	M_{1E}	19 02 50	11	35		
	eL_{1N}	19 01 20	17			
	M_{1N}	19 04.3	13		19	
	F	20.6				
Aug. 3	i_N	18 38 26	3		20	Local shock. Quarry blast.
	F	18 38 50				
Aug. 3	eP_N	20 12 57				No record on EW.
	iS_N	20 13 26	3		55	Felt in Hawaii.
	iL_{1N}	20 14 24	2			
	M_{1N}	20 14 32	2		137	
	F	21.0				
Aug. 4	e_N	16 08 40	5		3	
	e_E	16 08 40	7	5		
	F	16 16				
Aug. 5	O_1	21 12 47				Δ_1 = 5980 km.
	O_2	21 12 46				Δ_2 = 6022 km.
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

HONOLULU (University), Hawaii. J. H. Peters, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Aug. 5		(continued)				
	iP_E	21 22 18	7	15		
	iP_N	21 22 17	3			
	eE	21 25.0	7	18		
	i_N	21 29 16	10		9	
	iS_E	21 29 53	12	80		
	iS_N	21 29 52	8			
	eL_{1E}	21 33.3				
	M_{1E}	21 39.0	12	44		
	eL_{1N}	21 34.0				
	M_{1N}	21 44.2	9		66	
	M_{2E}	21 42.8	10	45		
	F	23.8				
Aug. 6	e_E	0 20 43	7	6		
	e_N	0 20.8				
	e_E	0 21.9	7	6		
	i_N	0 26 06	10		5	
	e_E	0 26.0				
	e_N	0 28 14	12		15	
	eL_{1E}	0 29.6	12			
	M_{1E}	0 31.0	8,17	50,40		
	eL_{1N}	0 29 32	10			
	M_{1N}	0 30 10				
	F	1.8				
Aug. 8	i_E	0 06 16	6	3		
	i_E	0 08 20	2	4		
	eS_E	0 13.4	10	5		
	e_N	0 13.6	6		5	
	e_N	0 16 46	14			
	M_{1N}	0 19.7	12		8	
	e_E	0 16.9				
	M_{1E}	0 19.0	11	5		
	e_E	0 21.9	7			
	M_{2E}	0 22.3	9	10	4	
	F	0 46				
Aug. 10	O_1	1 35 52				Δ_1 = 8080 km.
	O_2	1 36 00				Δ_2 = 7900 km.
	iP_E	1 47 16	6	8		
	iP_N	1 47 17	7		10	
	S_E	1 56 41	17	16		
	iS_N	1 56 41	8		11	
	i_N	1 59 36	9		10	
	eLq_E	2 07.0				
	M_{1E}	2 07.9	10	19		
	eLq_N	2 07.0	14			
	M_{1N}	2 09.6	10		48	
	eLr_E	2 08.0				
	M_{1E}	2 13.5	15	50		
	eLr_N	2 10.0	9		30	
	F	3.9				
Aug. 10	O_1	11 36 17				Δ_1 = 7980 km.
	O_2	11 36 36				Δ_2 = 7789 km.
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

HONOLULU (University), Hawaii. J. H. Peters, In Charge.

Date and Character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Aug. 10		(continued)				
	ePR_E	11 47 36	7	11		
	ePR_N	11 47 44	7		9	
	e_E	11 49.7	8	9		
	ePR_{2N}	11 52.0	12		14	
	iPR_{2E}	11 52 16	9	15		
	iS_E	11 56 54	14	69		
	eS_N	11 57.0	16		25	
	eL_{1E}	12 09.5	28			
	M_{1E}	12 12.1	20	70		
	eL_{1N}?	12 04 37	11			
	M_{1N}	12 07.2	20		30	
	M_{2N}	12 12.3	13		40	
	F	13.9				
Aug. 11	i_E	5 59 33	12	4		
	e_N	5 59.6				
	eL_{1E}	6 00.9				
	M_{1E}	6 01.2	11	14		
	M_{1N}	6 01.5	10		4	
	F	6 13				
Aug. 13	i_{EN}	3 16 17				Local shock. Quarry blast.
	F	3 16 40				
Aug. 13	i_{EN}	21 48 07				Local shock. Quarry blast.
	F	21 48 33				
Aug. 13	i_E	22 08 04				Local shock. Quarry blast.
	i_N	22 08 10				
	F	22 08 20				
Aug. 18	O_1	19 27 41				Δ_1 = 6140 km.
	O_2	19 27 54				Δ_2 = 6178 km.
	iP_E	19 37 24	10	10		
	ePR_N	19 37 20	7		6	
	iS_E	19 44 57	12	41		
	iS_N	19 45 04	13		30	
	eLq_E	19 51 20	11			
	M_{1E}	19 52.5	11	30		
	eL_N?	19 51.4				
	Lq_N	19 51 45				
	M_{1N}	19 53.3	11		64	
	eLr_E	19 54 54				
	M_{1E}	19 55 50	20	55		
	Lr_N	19 54 53				
	M_{1N}	19 55.3	10		63	
	F	22.5				
Aug. 20	e_E	21 54 26	12	5		
	?e_N	21 54.6				
	e_E	22 02.4	10	5		
	eL_{1N}	22 02.2				
	M_{1N}	22 03 45	11		11	
	eL_{1E}	22 04 38				
	M_{1E}	22 04 50	10	9		
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

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Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

HONOLULU (University), Hawaii. J. H. Peters, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Aug. 20		(continued)				
	e_N	22 12.5	10		10	
	eL_E	22 13.0	17	9		
	F	22.8				
Aug. 21	iS_E	0 16 02	15	11		Preliminary phases lost by changing paper.
	iS_N	0 15 50	10		16	
	e_N	0 19.6	9		10	
	eL_{1E}	0 27 50				
	M_{1E}	0 30.5	18	24		
	eL_{1N}	0 26 25				
	M_{1N}	0 26 48	18		10	
	F	1 42				
Aug. 21	eL_E?	22 54.0	9	9		
	eL_N?	22 54.0	10		10	
	F	23 04				
Aug. 23	$?e_E$	6 39 58				
	iPR_{2E}	6 41 12	12	6		
	eS_N	6 46 17	10		5	
	e_N	6 52 57	14		6	
	e_E	6 53 30				
	e_N	6 53 57	10		6	
	e_E	6 54 45				
	eL_{1E}	6 55 30				
	M_{1E}	6 56 18	9	15		
	eL_{1N}	6 54 37	10			
	M_{1N}	6 56 10	10		20	
	F	7.9				
Aug. 24	$?e_N$	9 12.7				
	e_E	9 13.0	13	4		
	e_N	9 19 30	10		4	
	eL_{1E}	9 19.5				
	M_{1E}	9 23.2	10	6		
	eL_{1N}	9 20 40				
	M_{1N}	9 23.0	10		8	
	M_{2N}	9 24.8	10		11	
	M_{3N}	9 27.3	10		8	
	F	10.3				
Aug. 24	eS_E?	18 30.4				Time on EW is not certain owing to defective illumination.
	eL_{1E}	18 44.0	20	5		
	eL_{2E}	18 51.0	19	5		
	e_N	18 57.3	18		4	
	F	19.1				
Aug. 27	e_E	12 29.4				NS activity too weak to interpret.
	eL_E?	12 38.0	9	6		
	F	12 46				
Aug. 27	i_E	17 44 15				Local shock. Quarry blast.
	F	17 44 50				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

HONOLULU (University), Hawaii. J. H. Peters, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Sept. 2	i_E	20 20 20				Local shock. Quarry blast.
	i_N	20 20 31				
	F	20 20 45				
Sept. 3	$?e_E$	20 13.0	13	3		No record on NS.
	$eS_E?$	20 16.0	14	6		
	e_E	20 22.0	18	4		
	eL_{1E}	20 46.3	20	2		
	F	21.3				
Sept. 5	i_E	2 45 25				Local shock. Quarry blast.
	i_N	2 45 28				
	F	2 45 40				
Sept. 7	i_{EN}	3 48 10				Local shock. Quarry blast.
	F	3 49 40				
Sept. 8	e_E	17 47.0				Nothing on NS.
	F	17 54				Very weak activity.
Sept.11	e_E	22 51.1				No outstanding maximum on
	e_N	22 46.5				EW component.
	eL_{1E}	23 02.0				
	eL_{1N}	23 09.0				
	M_{1N}	23 20.5	23		15	
	M_{2N}	23 25	21		15	
	F	23 50				
Sept.13	eS_E	10 32.0	8	10		
	eS_N	10 32.0				
	eL_{1E}	10 39.8				
	M_{1E}	10 41.5	23	12		
	eL_{1N}	10 39.8				
	M_{1N}	10 40.5	25		10	
	F	10 53				
Sept.16	eS_E	16 01 55	10	6		
	eS_N	16 01 57	9		5	
	e_E	16 08.5				
	e_E	16 09.6				
	eL_{1E}	16 10 50				
	M_{1E}	16 11.0	10	8		
	eL_{1N}	16 08 29				
	M_{1N}	16 13.0	10		6	
	F	16 28				
Sept.17	$eL_E?$	0 19.0	17	4		Nothing on NS.
	F	0 38				Weak activity.
Sept.18	eL_{1E}	2 22.0	18	4		No outstanding maximum on
	eL_{1N}	2 22.7				EW component.
	M_{1N}	2 25 30	11		9	
	F	2 38				

* indicates trace amplitude in one-tenth millimeters.

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Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

HONOLULU (University), Hawaii. J. H. Peters, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Sept. 19	eLr$_E$	8 56.4				
	eLr$_N$	8 56.3	13		6	
	eLq$_E$	9 06.9	15	5		
	P	9 13				
Sept. 20	i$_N$	19 03 58				Local shock. EW lost.
	P	19 04 10				Quarry blast.
Sept. 20	i$_N$	19 10 04				Local shock. EW lost.
	P	19 10 23				Quarry blast.
Sept. 20	i$_N$	19 43 47				Local shock. EW lost.
	P	19 44 00				Quarry blast.
Sept. 20	i$_N$	20 19 25				Local shock. EW lost.
	P	20 19 40				Quarry blast.
Sept. 23	e$_N$	14 51.0	20		4	
	P	14 57				
Sept. 24	e$_N$	17 55.8				
	eL$_1$E	17 55.0				
	M$_1$E	17 56 20	10	20		
	eL$_1$N	17 58 12				
	M$_1$N	17 58 40	9		20	
	P	18 05				

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Table II. Instrumental Reports. Cornell University.

ITHACA, New York. P. G. Sheldon, Observer.

Lat. 42° 27.'0 N. Long. 76° 29.'2 W. h, 243 m.

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Instrument	Compo-nent	Mass	T_o	V	ϵ	
Bosch-Omori	EW	25 kg.	21 s.?	12	4:1	
do	NS	25 kg.	24 s.?	13	4:1	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
July 1	eP	8 30 15				L indistinct.
	S	8 39 26				
July 12	e	21 27 14				L indistinct.
	i	21 30 40				
July 14	eL	13 19	13			
	F	13 31				
July 28	P	16 27 02				
	S	16 34 16				
	eL	16 42.5				
	F	17 05				
Aug. 1	eL	19 22 16				
	F	19 44				
Aug. 5	eP	21 26 09				
	e	21 29 39				
	iS	21 37 02				
	e	21 50				
	L	21 57	13			
	L	22 00	20			
	F	22 28				
Aug. 6	L	0 38				
	F	1 03				
Aug. 10	iP	1 42 29				
	PR_1	1 43 30				
	iS	1 48 06				
	L	1 51 34	38			
	M	1 55 50	15	10*		
	F	2 48				
Aug. 10	e	11 58 02				
	e	12 15 14				
	e	12 30	17			
	e	12 32.6	9			
	L	12 36	20			
	F	13 53				
Aug. 18	e	19 45 10				
	e	19 46 56				
	e	19 51 53				

(continued)

* indicates trace amplitude in one-tenth millimeters.

Table II. Instrumental Reports. Cornell University.

ITHACA, New York. P. G. Sheldon, Observer.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Aug. 18		(continued)				
	e	20 02 08				
	L	20 13				
	L	20 19	22			
	F	21 13				
Aug. 21	eS	0 08 00				P lost in changing sheets.
	i	0 10 20				
	L	0 12	30			
	M	0 16 10	18	12*		
	F	1 08				
Aug. 21	L	10 35				
	L	10 38	22			
	F	10 51				
Sept. 3	P	19 55 42				
	S	20 02 09				
	L	20 07.7	16			
	F	20 28				
Sept. 11	P	22 27 22				
	S	22 36 50				
	L	22 48.6	30			
	F	23 41				
Sept. 17	e	1 37 02	3			The character is that of a nearby earthquake.
	F	1 41				
Sept. 23	L	14 54	18			
	F	14 58				

* indicates trace amplitude in one-tenth millimeters.

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Table II. Instrumental Reports. — Theosophical University.

POINT LOMA, California. — Charles M. Savage, Observer.

Lat. 32° 43.0 N. — Long. 117° 15.2 W. — h, 91 m.

Two-horizontal-component astatic arrangement, on the lines of a suggestion by C.D. West. Also an arrangement for recording vertical movements. V 1.

Date	Phase	Time	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
July 16		16 00		100*	100*	
17		do		200*	200*	
20		do		0*	200*	The observer states that the record for July may be incomplete.
3		do		100*	200*	
Aug. 4		16 00		100*	50*	14^h 48.5^m, Pacific Time, on 14 Three light shocks of about three seconds duration, five seconds apart; taking 15 seconds in all. Rossi-Forel scale III-IV. No preceding noise heard; shocks appreciably lateral and not vertical.
5		do		100*	50*	
11		do		200*	100*	
12		do		100*	100*	
13		do		100*	100*	
14		do		1000*	800*	
15		do		200*	300*	
17		do		100*	100*	
19		do		800*	600*	
20		do		200*	100*	
21		do		100*	100*	
22		do		100*	100*	
23		do		100*	100*	
25		do		100*	100*	
26		do		100*	100*	
28		do		100*	100*	
29		do		100*	100*	
30		do		100*	100*	
Sept. 1		16 00		300*	400*	NOTE: Disturbance on the 18th possibly due to blasting about three-quarters of a mile distant; and on the 30th to target practice at Fort Rosecrans.
2		do		200*	200*	
3		do		200*	100*	
4		do		200*	100*	
11		do		100*	0*	
17		do		100*	200*	
18		do		300*	200*	
22		do		300*	50*	
23		do		400*	300*	
24		do		200*	300*	
27		do		100*	100*	
29		do		100*	100*	
30		do		100*	100*	

* indicates trace amplitude in microns.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

SAN JUAN, Porto Rico. W. M. Hill, In Charge.

Lat. 18° 23.4 N. Long. 66° 07.3 W. h, 80 m.

Instrument	Compo-nent	Mass	T_o	V		
Bosch-Omori	EW	10 kg.	8 s.	10	Undamped	
do	NS	do	8 s.	10	do	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
						No earthquakes recorded during July.
Aug. 2	iP_E	0 52 17				
	ePN	0 52 18	1		1	
	L_{1E}	0 52 46				
	M_{1E}	0 53.1	8?	35		
	iL_{1N}	0 52 36	2		31	
	F	1 02				
Aug. 10	iP_E	1 39 58	3	10		
	iP_N	1 40 01	4		5	
	L_{1E}	1 43 44				
	M_{1E}	1 43 53	12	12		
	L_{1N}	1 43 47				
	M_{1N}	1 43 53	8		10	
	F	2 09				
Aug. 20	iP_N	23 59 09	7		19	EW record lost.
	iPR_{1N}	24 00 40	8		6	
	iS_N	24 03 00	8		25	
	L_{1N}	24 03 45				
	M_{1N}	24 04 24	9		25	
	F	24 24				
						No earthquakes recorded during September.

* indicates trace amplitude in one-tenth millimeters.

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

SITKA, Alaska. F. P. Ulrich, In Charge.

Lat. 57° 03.0 N. Long. 135° 20.1 W. h, 15 m.

Instrument	Compo-nent	Mass	T_o	V	ϵ	
Bosch-Omori	EW	10 kg.	18.9 s.	10	Undamped	
do	NS	10 kg.	16.9 s.	10	do	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
July 28	eL_{1E}	16 24 22				
	eL_{1N}	16 24 44	16		3	
	e_E	16 28 01	9	1		
	F	16 42				
Aug. 5	O_1	21 11 46				Δ_1 = 6780 km.
	O_2	21 11 54				Δ_2 = 6756 km.
	ePE	21 22 09	12			
	ePN	21 22 01	7			
	eS_E	21 30 19	12			
	$1S_N$	21 30 19	7			
	eSR_{1E}	21 33 47	8			
	eSR_{1N}	21 33 55	8			
	eL_{1E}	21 38 14	18			
	M_{1E}	21 41.4	16	1		
	eL_{1N}	21 38 15				
	M_{1N}	21 41.0	12		2	
	F	22 13				
Aug. 6	eS_E	0 20 28				
	eS_N	0 20 22	14			
	eL_{1E}	0 23 51				
	M_{1E}	0 25 33	10	3		
	eL_{1N}	0 23 58	12			
	M_{1N}	0 25 23	12		1	
	F	1 30				
Aug.10	e_E	2 19.0	16			
	e_N	2 06.6	20			
	F	2 47				
Aug. 10	eS_E?	11 59 58	6			
	eS_N?	11 58.7	4			
	F	13 10				
Aug. 18	eS_E	19 44 59	8			
	eS_N	19 45 01	6			
	eL_{1E}	19 50 26				
	M_{1E}	20 01.0	20	1		
	eL_{1N}	19 50.3				
	M_{1N}	19 59.6	16		1	
	F	20 31				
Aug. 21	eS_E	0 14 27	10			
	eS_N	0 14 27	8			
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

SITKA, Alaska. F. P. Ulrich, In Charge,

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Aug. 21		(continued)				
	e_E	0 17 49	8			
	eSR_{2E}	0 21 28				
	eSR_{2N}	0 21 25	12			
	eL_{1E}	0 29.5				
	M_{1E}	0 39 39	15	2		
	eL_{1N}	0 29.5				
	M_{1N}	0 36.0	15		4	
	F	0 59				
Sept.11	ePR_{1E}	22 32 43	12			
	ePR_{1N}	22 32 43	6			
	e_E	22 36 57	12			
	e_N	22 36 55	10			
	eL_{1E}	23 01 37				
	M_{1E}	23 04.4	14	1		
	eL_{1N}	23 01 32				
	M_{1N}	23 04.5	16		2	
	F	23 42				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Lat. 32° 14.8' N. Long. 110° 50.1' W. h, 770 m.

Instrument	Compo-nent	Mass	T_o	V	ϵ	
Wood-Anderson	EW	2.3 gms.	5.3 s.	435	About 30:1	
do	NS	2.3 gms.	5.3 s.	435	30:1	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
July 3	L_{1N}	10 49 42				No record on EW.
	M_{1N}	10 50.0	4		4	
	F	10 54.0				
July 4	eL_{1E}	17 30 30				
	M_{1E}	17 30 56	2	5		
	eL_{1N}	17 30.2				
	M_{1N}	17 30 54	3		6	
	F	17 35.0				
July 5	O_1	19 59 31				Local.
	P_E	20 00 54	1	1		Δ_1 = 580 km.
	P_N	20 00 50	1		2	
	e_E	20 01 20	2	2		
	e_N	20 01 20	2		3	
	S, L_{1E}	20 01 55				
	M_{1E}	20 02 26	4	25		
	S, L_{1N}	20 01 54				
	M_{1N}	20 02 20	4		21	
	F	20 11				
July 8	eP_N	7 09.0	3		1	EW record lost.
	e_N	7 13 54	4		1	
	e_N	7 16 46	4		3	
	eL_{1N}	7 19.1				
	M_{1N}	7 20.3	12		3	
	F	7 25				
July 12	e_N	21 19 45	4		5	No record on EW.
	e_N	21 22.5	4		3	
	iL_{1N}	21 29 20				
	M_{1N}	21 29 26	4		15	
	F	21 38				
July 15	e_N	18 39 50	3		1	
	e_E	18 45.0	4	1		
	e_E	18 47 30	5	1		
	eL_{1E}	18 51 21				
	M_{1E}	18 51.9	12	3		
	eL_{1N}	18 53.0	?		1	
	F	19 00				
July 15	$?e_E$	22 21 09				
	e_E	22 21 43	2	3		
	e_N	22 21 44	2		4	

(continued)

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
July 15		(continued)				
	e_E	22 25.1	5	5		
	e_N	22 25 05	4		5	
	e_N	22 28 22	4		5	
	e_E	22 28 57	5	5		
	F	22 36				
July 16	O_1	1 55 44				Local.
	eP_E	1 56 41				Δ_1 = 370 km.
	eP_N	1 56 36				
	S_N	1 57 17	1		1	
	eL_{1E}	1 57 39				
	M_{1E}	1 58 05	2	10		
	L_{1N}	1 57 46				
	M_{1N}	1 58 03	2		5	
	F	2 03				
July 28	O_1	16 18 00				Δ_1 = 4245 km.
	O_2	16 17 49				Δ_2 = 4400 km.
	iP_E	16 25 36	4	10		
	iP_N	16 25 36	4		13	
	iPR_{1E}	16 27 18	4	10		
	iPR_{1N}	16 27 18	4		10	
	iPR_{2E}	16 28 22	4	9		
	iS_E	16 31 36	6	10		
	iS_N	16 31 38	5		8	
	iSR_{1E}	16 35 26	6	9		
	iSR_{1N}	16 35 35	5		10	
	eL_{1E}	16 37 32				
	M_{1E}	16 40 26	15	10		
	L_{1N}	16 38 22				
	M_{1N}	16 39 32	19		10	
	F	18 21				
Aug. 1	eP_E	17 15 13	4	1		
	eP_N	17 15 13	4		2	
	e_N	17 17 19	3		2	
	e_E	17 22 39	5	1		
	S_N?	17 22 40	6		5	
	e_E	17 23 51	4	1		
	eL_{1E}	17 30.0	16	3		
	eL_{1N}	17 30.0				
	M_{1N}	17 31.0	18		5	
	F	17 58				
Aug. 1	P_E	18 55 38	3	2		
	P_N	18 55 38	3		1	
	e_E	18 58 46	4	2		
	eL_{1E}	19 10.0				
	M_{1E}	19 20.0	16	5		
	eL_{1N}	19 10.0				
	M_{1N}	19 11.0	22		7	
	F	19 45				
Aug. 2	P_E	0 59 56	2	1		Local.
	P_N	0 59 54	2		1	
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Aug. 2		(continued)				
	eL, S_E?	1 07.4				
	eL, S_N?	1 06 16	5		3	
	P	1 10				
Aug. 4	P_E	12 26 10				Local.
	P_N	12 26 02				
	e	12 26 30	2	1		
	e	12 27 28	2		2	
	L_{1E}	12 27 35				
	M_{1E}	12 28 04	3	21		
	L_{1N}	12 27 33				
	M_{1N}	12 28 10	3		19	
	F	12 36				
Aug. 5	e	3 51 27	2	1		
	e	3 51 25	4		2	
	e	3 52 53				
	e	3 53.0	4		3	
	F	3 56				
Aug. 5	O_1	21 13 08				Δ_1 = 9025 km.
	O_2	21 13 14				Δ_2 = 8889 km.
	P_E	21 25 22	4	5		
	P_N	21 25 22	2		5	
	ePR_{1E}	21 28 15	4	5		
	ePR_{1N}	22 28 59	5		4	
	S_E	22 35 33	10	16		
	S_N	22 35 35	11		14	
	eSR_{1E}	22 40 43	9	5		
	eSR_{1N}	22 40 57	11		10	
	eL_E?	22 47.0				
	eL_{1E}	22 51.5				
	M_{1E}	22 54.5	20	15		
	L_{1N}	22 47.3				
	M_{1N}	22 47.9	37		10	
	F	22.7				
Aug. 6	O_1	0 13 56				Δ_1 = 4345 km.
	O_2	0 13 44				Δ_2 = 4500 km.
	P_E	0 21 40	3	5		
	P_N	0 21 38				
	P_N	0 21 45	3		6	
	PR_{1E}	0 23 13	4	6		
	PR_{1N}	0 23 16	4		6	
	S_E	0 27 45	5	9		
	S_N	0 27 47				
	SR_{1E}	0 31.2	4	4		
	SR_1, L_N	0 31 45	4		7	
	L_{1E}	0 33.3				
	M_{1E}	0 36.4	18	10		
	L_{1N}	0 34.2				
	M_{1N}	0 35.5	19		10	
	F	1.5				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Aug. 8	L_N?	1 08 45	2		2	EW record lost in overlap.
	F	1 12.0				
Aug. 10	O_1	1 35 28				No record on EW.
	O_2	1 35 13				Δ_1 = 3840 km.
	P_N	1 42 34	4		32	Δ_2 = 4033 km.
	PR_{1N}	1 43 45	4		84	
	S_N	1 48 12	7		40	
	L_{1N}	1 52.8	8		17	
	eL_{2N}	1 54.7				
	M_{2N}	1 57 40	8		88	
	F	3.1				
Aug. 10	eP'_N	11 55 40	3		1	No record on EW.
	S_N	12 02.6	14		4	Times uncertain; recorder out
	e_N	12 05.0	14		5	of adjustment.
	F	?				
Aug. 12	eS_E?	0 55 46	5	8		Local?
	eS_N?	0 55 46	5		5	
	eL_E?	0 56 14	4	5		
	eL_N?	0 56 12	4		6	
	F	1 00				
Aug. 18	O_1	19 28 09				Δ_1 = 9240 km.
	O_2	19 28 14				Δ_2 = 9156 km.
	eP_E	19 40 34	7	3		
	eP_N	19 40 34	4		2	
	eS_E	19 50 57	10	9		
	eS_N	19 50 56	9		8	
	eL_E?	20 05 44	12	4		
	eL_N?	20 03.6	18		5	
	eL_N?	20 07.2	13		9	
	eL_N?	20 09 48	10		15	
	L_{1E}	20 10.0				
	M_{1E}	20 13.0	22	33		
	eL_{1N}	20 10 40				
	M_{1N}	20 13.1	21		15	
	F	21 25				
Aug. 20	e_N	21 09 17	3		3	
	e_E	21 09 19	4	2		
	eL_{1E}	21 13 21				
	M_{1E}	21 14.5	8	9		
	eL_{1N}	21 13 05				
	M_{1N}	21 13 57	9		10	
	F	21 25				
Aug. 20	O_1	23 54 15				Δ_1 = 4215 km.
	O_2	23 54 02				Δ_2 = 4389 km.
	P_E	0 01 48	4	15		
	P_N	0 01 48	5		8	
	PR_{1E}	0 03 22	6	24		
	iPR_{1N}	0 03 25	6		20	
	iS_E	0 07 55	14	26		
	eS_N	0 07 40	8		35	

(continued)

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Aug. 20		(continued)				
	SR_{1E}	0 10 47	9	20		
	eSR_{1N}	0 09 32	9		20	
	eLq_E	0 12 53				
	M_{E1}	0 14.5	12	65		
	eLr_E	0 15.1				
	M_{E1}	0 15.3	10	60		
	eLq_N	0 13.0				
	M_{N1}	0 14.7	10		34	
	eLr_N	0 16.0				
	M_{N1}	0 16.3	20		55	
	F	1 27				
Aug. 21	P_E	10 26 34	4	4		
	P_N	10 26 36	4		3	
	e_E	10 28 10	4	5		
	e_N	10 28 10	4		5	
	$?e_E$	10 30 20	4	7		
	e_E	10 32 32	4	2		
	e_E	10 37 52	14	5		
	e_N	10 32 34	4		5	
	eL_{1E}	10 39.2				
	M_{1E}	10 39.9	10	10		
	eL_{1N}	10 39.1	10		9	
	F	10 54				
Aug. 22	P_N	8 00 07	4		3	Record lost on EW.
	PR_{1N}	8 01 42	3		4	Absolute time uncertain on NS.
	$?e_N$	8 06.0				
	e_N	8 10.3				
	eL_{1N}	8 12 50	8		2	
	F	8 22				
Aug. 23	eL_{1E}	7 12.0				Absolute times uncertain.
	eL_{1N}	7 08.1	10		2	
	F	7 47				
Sept. 3	O_1	19 47 48				Δ_1 = 7400 km.
	O_2	19 47 53				Δ_2 = 7300 km.
	P_E	19 58 34	3	2		
	P_N	19 58 36	3		2	
	e_E	19 59 08				
	e_N	19 59 47	3			
	eS_E	20 07 19	19	7		
	eS_N	20 07 26	10		5	
	$?e_E$	20 19.3				
	$?eSR_{1N}$	20 11 37				
	eSR_{2N}	20 14 50	22		13	
	L_{1E}	20 24 40				
	M_{1E}	20 29.0	16	9		
	eL_{1N}	20 19 30	21		7	
	F	20.9				
Sept.11	P_N	22 29 35	4		2	No record on EW.
	eL_{1N}	23 00.8				
	M_{1N}	23 15.0	15		14	
	F	23.7				

* indicates trace amplitude in one-tenth millimeters.

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Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.		*	*	
Sept.12	e_N	3 21 24	3		3	No record on EW.
	eL_{1N}	3 21 57				
	M_{1N}	3 22 24	4		8	
	F	3 29				
Sept.18	O_1	2 07 13				No record on EW.
	O_2	- - -				South Sierra Mountains,
	P_N	2 09 14	2		3	California and Nevada, accord-
	S_N	2 10 53	2		9	ing to the press.
	L_{1N}	2 11 21				
	M_{1N}	2 12.4	5		84	
	F	2 28				
Sept.20	e_N	8 11 35	5		8	No record on EW.
	eL_N?	8 13 33	10		7	
	F	8 20				
Sept.24	P_E	16 02 12				Local.
	P_N	16 02 08	2		1	
	eS_E	16 03 04	2	3		
	iS_N	16 03 01	2		3	
	L_{1E}	16 03 17	5			
	M_{1E}	16 04.1	5	5		
	L_{1N}	16 03 15	2		5	
	F	16 07				
Sept.24	e_N	17 50.2	2		1	
	e_E	17 50.1	2	2		
	eL_{1E}	18 08.4	15	5		
	F	18 14				
Sept.25	eL_{1E}	5 46 19				
	M_{1E}	5 47 15	11	5		
	e_N	5 46 17	5		5	
	e_N	5 48.4	10		3	
	F	5 52				

* indicates trace amplitude in one-tenth millimeters.

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Table IIa. Microseisms. — C. and G. Survey Magnetic Observatory.

HONOLULU, Hawaii. — J. H. Peters, In Charge.

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Days of subnormal activity: Max. A_{EW} about 6*	July 1-6, 15-19 August 1-11, 14, 18-23 September 2, 15
Days of normal activity: Max. A_{EW} about 12*	July 7-14, 20-31 August 12, 13, 15-17, 24-31 September 1, 3-6, 10-14, 16-19, 22, 23, 30
Days of abnormal activity: Max. A_{EW} about 18*	July ----- August ----- September 7-9, 20, 21, 24-29

* Indicates trace amplitude in microns.

Table IIa. Microseisms. — Theosophical University.

POINT LOMA, California — F. J. Dick, Observer.

See Table II for microseismic activity recorded at this station.

Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from July 1, 1927 to September 30, 1927.

International Seismological Centre

List of Seismological Observatories and Station Symbols.

*BER	Berkeley, Calif.	**MAN	Manila, P.I.
CAM	Cambridge, Mass.	*MOB	Mobile, Ala.
CHE	Cheltenham, Md.	*NOR	New Orleans, La.
CHI	Chicago, Ill.	*NYF	New York (Fordham), N.Y.
*CLA	Santa Clara, Calif.	*OTT	Ottawa, Can.
CZB	Canal Zone, Balboa Heights	*SAS	Saskatoon, Can.
*DEN	Denver, Colo.	SIT	Sitka, Alaska
*GEO	Georgetown, D.C.	SJU	San Juan, P.R.
GUAM	Guam, M.I.	*SPO	Spokane, Wash.
*HAL	Halifax, Can.	*STA	Ste.Anne de la Pocatiere, Can.
HON	Honolulu, T.H. (Mem)	*STL	St. Louis, Mo.
**HVO	Hawaiian Volcano Obs'y.	*TOR	Toronto, Can.
ITH	Ithaca, N.Y.	TUC	Tucson, Ariz.
LOM	Point Loma, Calif.	*VIC	Victoria, B.C.
*LICK	Lick Obs'y., Calif.		

* Instrumental registers are not published in this report.

** Only teleseismic reports are noted in this table. See introductory remarks.

NOTE

See introductory remarks concerning tabulation of provisional origins. Observatories listed in this table are limited to those submitting monthly reports to the Coast and Geodetic Survey in time for routine publication. Although foreign reports are also utilized, reference to them is not made because of the limited purpose which this report serves. When origins are determined by other institutions such as the Central Seismological Bureau at Strasbourg, the source of information is stated.

An asterisk (*) after the tabulated time indicates instrumental time of origin. Otherwise the tabulated time refers to the approximate time the earthquake was felt, or the time at which the initial phase was recorded at the first observatory named, if not felt.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927			
July 1	8 19.0*	Greece, 36° N., 25° E.	Felt CHI ITH OTT VIC NYF TOR
1	22 07	-----	CHI
2	11 02	-----	OTT
3	8 16.4*	Philippine Islands, 14° N., 126° E.	Felt in Philippine Islands MAN VIC OTT Manila epicenter
3	10 37.2*	Samoa, 15° S., 172° W.	Felt in Samoa TUC HON OTT TOR VIC MAN HVO Apia epicenter
4	15 47	-----	OTT TOR
4	17 30	-----	TUC Local
5	1 15	-----	GUAM
5	7 23.0*	Near Samoa, 16° S., 175° W.	HON Wellington epicenter
5	19 59	-----	TUC Local
6	0 19	-----	OTT TOR

Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from July 1, 1927 to September 30, 1927.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927			
July 6	13 30	Hawaiian Islands	Felt
6	21 43	-----	HON
7	3 19	-----	OTT CHI
7	13 52	Hawaiian Islands	Felt
7	20 06.5*	Persia, 35.4° N., 54.3° E.	VIC OTT TOR Irkutsk epicenter
8	0 47	California, Kern Co.	Felt
8	3	Alaska, Seward	Felt
8	7 09	-----	TUC
8	17 48	-----	OTT TOR
10	4 16	Australia, Euroa	Felt HON OTT TOR VIC
10	14 43	-----	MAN OTT TOR
11	8 08.0*	Pacific O., near Japan, 44° N., 145° E.	OTT TOR VIC
11	13 03.8*	Asia Minor, 32° N., 36° E.	Destructive in Palestine CHI MAN OTT TOR VIC
11	23 52	-----	CHI
12	21 08.0*	Sea of Okhotsk, 49° N. 144° E.	TUC ITH HON CHI MAN OTT TOR VIC NYP
14	13 10	Asia Minor?	Felt CHI ITH HON OTT TOR VIC NYP BER LICK Probably two overlapping shocks
14	23 16.6*	Banda Sea, 7° S., 131° E.	CHI HON OTT TOR VIC MAN HVO
15	18 39	-----	TUC HON CHI OTT TOR VIC
15	22 09.8*?	California?	TUC OTT TOR LICK
16	1 44	-----	OTT TOR VIC
16	1 55.8*	California, Calexico	Felt TUC
16	2 34	-----	OTT TOR
16	13 05	-----	TOR NYP
17	11 11	-----	OTT TOR
17	18 49	Guam	Felt GUAM
17	19 15	-----	GUAM
18	5 23	Guam	Felt GUAM HON
18	11 20.6*	New Zealand, 37.5° S., 117° E.	Felt HON CHI MAN NYP OTT TOR VIC Wellington epicenter
19	10 09	-----	GUAM
20	?	Tennessee, middle and eastern	Felt
21	0 04	-----	CAM
22	3 55.0*	Persia, 36° N., 52° E.	Felt CHI HON MAN NYP OTT TOR VIC
22	9 23	-----	OTT
23	21 02	-----	CHI MAN OTT TOR VIC
23	22 40.3*	Persia, 33° N., 53° E.	Felt CHI OTT TOR VIC
24	7 34	Guam	Felt GUAM
24	16 36.3*	California	LICK
25	0 56	Northern Maine and Quebec Province, Canada	Felt
25	3 34	-----	OTT
25	11 52.4*	California	LICK
25	12 40	Hawaiian Islands	Felt
26	15 43	-----	VIC
26	16 32	Hawaiian Islands	Felt Other shocks at 22:30 and 22:38
27	12 00	Hawaiian Islands	Felt
27	12 21	-----	GUAM Other activities at 12:53, 14:07 and 15:02

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Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from July 1, 1927 to September 30, 1927.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927			
July 28	16 17.6*	Alaska Peninsula, 56° N., 162° W.	HON TUC ITH CHI SIT MAN STL NYP OTT TOR VIC BER LICK HVO
29	0 03.0*	Bengal Sea, 14° N., 88° E.	OTT TOR VIC MAN
30	0 36	-----	OTT TOR VIC
30	9 32	-----	OTT
30	14 18.4*	Pacific O., near Japan 41° N., 144° E.	OTT TOR Tashkent epicenter
31	12 44	Hawaiian Islands	Felt HON
31	15 39	-----	GUAM
31	17 48	-----	OTT TOR
Aug. 1	0 26	-----	OTT
1	11 28.7*	Chile, South America, 23.3° S., 68.5° W.	OTT TOR MAN La Paz epicenter
1	17 05.9*	Aleutian Islands, 51° N., 178° W.	TUC HON CHI OTT TOR VIC NYP
1	18 46.2	Aleutian Islands, 51° N., 178° W.	TUC ITH HON OTT TOR VIC NYP BER
2	0 52.0*	Porto Rico	Felt SJU TUC NYP OTT TOR VIC
3	20 12	Hawaiian Islands	Felt HON OTT TOR
4	0 39	-----	OTT TOR
4	12 24.5*	California, southern part	Felt OTT TUC TOR VIC BER LICK
4	15 47.9*	Celebes Id., 2° S., 120° E.	HON OTT TOR MAN
4	22 30	-----	OTT TOR
4	23 37	-----	OTT TOR
5	3 51	-----	TUC OTT TOR VIC
5	21 13.1*	Pacific O., off Japan, 41° N., 142° E.	Felt MAN SIT TUC ITH HON CHI STL NYP OTT TOR VIC BER HVO
6	0 13.9*	Alaska Peninsula, 56° N., 159° W.	TUC CAM ITH HON CHI SIT STL NYP OTT TOR VIC BER
7	?	Idaho	Felt?
7	19 56	-----	GUAM
8	0 06	-----	HON VIC OTT TOR
8	0 57.5*	Kurile Islands, 46° N., 151° E.	TUC OTT VIC HON MAN
8	3 59	-----	OTT TOR VIC
8	18 44.0*	Pacific O., N.W., Borneo, 1° N., 117° E.	OTT TOR VIC NYP MAN
9	21 41	-----	GUAM
9	1 27	-----	TUC OTT TOR VIC
9	15 54	-----	OTT TOR
10	1 35.0*	Pacific O., off Panama, 5° N., 83° W.	Felt CHI TUC CAM ITH CZB HON SJU CHR OTT TOR HAL VIC STL NYP SIT BER HVO
10	9 53.5*	Pacific O., off Panama, 5° N., 83° W.	Felt CZB OTT TOR ITH
10	11 36.0*	Banda Sea, 5° S., 130° E.	HON TUC CAM ITH CHI SIT OTT TOR VIC STL NYP MAN BER HVO
10	12 12	California, Eureka	Felt BER
10	17 58 54	Off Panama?	CZB CHI OTT TOR
11	5 59	-----	HON OTT TOR VIC
11	8 15	-----	CHI
12	0 33.7*	Pacific O., Bonin Is., 28° N., 140° E.	TUC OTT TOR MAN
12	10 22.8*	Turkestan, 41° N., 71° E.	OTT TOR MAN

International Seismological Centre

Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from July 1, 1927 to September 30, 1927.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927			
Aug. 13	16 10	Tennessee, Tiptonville	Felt
14	14 48	California, San Diego	Felt POINT LOMA
18	19 27.5*	Pacific O., off Japan, 35° N., 145° E.	HON TUC CAM ITH CHI SIT OTT VIC STL TOR NYP MAN BER
19	4 34	-----	GUAM
20	0 01	-----	OTT TOR
20	?	Massachusetts, near Boston	Felt
20	20 05.7*	California, off coast near Eureka	Felt, intensity VIII CHI OTT VIC TOR BER See article by P. Byerly in Dec., 1927, number of BSSA.
20	21 37.3*	Pacific O., off Japan, 36° N., 144° E.	TUC VIC HON OTT
20	23 54.2*	Pacific O., off Colombia, 4° N., 81° W.	TUC CAM ITH CZB HON CHI SIT OTT TOR VIC SJU NYP MAN CHR STL BER
21	10 19.1*	Pacific O., off Colombia, 4° N., 81° W.	CHI TUC ITH CZB OTT TOR VIC
21	12 54	-----	VIC
21	22 54	-----	HON OTT TOR
22	2 51.7*?	Pacific O., off Colombia, 4° N.?, 81° W.?	CZB CHI OTT TOR TUC?
22	19 29	-----	OTT
23	6 28.7*	Pacific O., off Japan, 35° N., 144° E.	HON CHI OTT TOR TUC MAN
23	14 32	Guam	Felt GUAM
23	20 10	Hawaiian Islands	Felt
23	21 21	-----	GUAM
24	8 55.8*	Pacific O., off Japan, 35° N., 145° E.	HON OTT TOR VIC MAN
24	12 12	-----	GUAM
24	18 08.8*	Formosa, 23° N., 122° E.	Destructive HON OTT TUC VIC MAN CHI
26	6 39	-----	GUAM
26	12 40	California, Santa Barbara	Felt
27	10 43	-----	OTT TOR
27	12 29	-----	OTT TOR HON
29	6 31	-----	OTT TOR
29	8 25	-----	OTT TOR
30	"late"	Vancouver, B. C.	Felt
Sept. 2	8 57	Guam	Felt GUAM
3	12 47	-----	TUC Local
3	19 47.7*	Atlantic O., 10° N., 44° W.	CHI TUC CAM ITH HON OTT TOR VIC NYP
5	1 50	California, Yorba Linda	Felt
5	2 04	-----	OTT TOR
5	22 20	Arizona, Yuma ?	Felt
6	7 41	-----	OTT
6	17 34	California, Eureka	Felt
6	22 12	-----	VIC TOR OTT
7	13 34	-----	OTT
7	21 10	-----	CHI MAN OTT TOR VIC
8	17 47	-----	HON OTT TOR VIC MAN

International Seismological Centre

Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from July 1, 1927 to September 30, 1927.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927			
Sept. 9	0 32	-----	OTT TOR
10	3 46	-----	MAN TOR OTT VIC
10	16 40	Samoa	Felt in Apia MAN OTT TOR VIC
11	22 16.0*	Crimea, 45° N., 34° E.	Destructive CHI TUC CAM HON SIT ITH OTT TOR VIC STL NYP MAN BER
12	3 20.0*	Crimea, 44° N., 34° E.	TUC CAM CHI OTT TOR VIC
12	3 58	Crimea?	CHI
12	7 11	-----	OTT
12	8 47	-----	GUAM
12	14 23.8*	Crimea, 44° N., 34° E.	OTT TOR VIC CHI
12	21 06	-----	CZB
13	10 15.7*	New Hebrides Is., 17° S., 168° E.	MAN OTT TOR VIC HON
16	8 40	California, Eureka	Felt
16	15 46.4*	Kurile Is., 49° N., 157° E.	HON OTT TOR MAN Tachkent epicenter
17	0 45.2*	New Guinea, 3° S., 135° E.	HON OTT VIC MAN ITH
18	2 06.9*	California, So. Sierra Mts., 37° N., 118° W.	Felt, intensity VI TUC CHI OTT TOR VIC HON STL BER LICK
19	8 56	-----	HON MAN OTT TOR VIC
19	14 21	British Columbia	Felt VIC
20	8 11	-----	TUC VIC
23	13 53.1*	North Mongolia, 41° N., 91° E.	CHI HON ITH OTT TOR VIC MAN Tachkent epicenter
23	18 06	-----	OTT TOR
24	6 34	Crimea	Felt OTT TOR VIC
24	14 08	-----	VIC OTT TOR
24	16 02	-----	TUC Local
24	17 50	-----	TUC HON CHI OTT TOR VIC Ottawa reports two shocks
25	5 46	-----	TUC
25	9 21	-----	GUAM
25	13 50	-----	GUAM
25	17 50	-----	OTT
27	7 38	Porto Rico	Felt SJU
28	2 30	Hawaiian Islands	Felt
30	7 38.1*	Pacific O., off Japan, 42° N., 146° E.	OTT TOR
30	20 24	Hawaiian Islands	Felt HON

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Table IIIa - Distribution of Earthquakes
July 1, 1927 to Sept. 30, 1927

International Seismological Centre

Regions and Dates An underscore (_) indicates a heavy shock. An interrogation mark (?) indicates doubtful classification.	Number of Earthquakes located: provisionally	Number of Earthquakes located: with uncertainty
Alaska: July 8, 28; Aug. 6	3	
Canada: July 25?, Aug. 30, Sept. 19	2	1
Hawaii: July 6, 7, 25, 26, 27, 31; Aug. 3, 23, 28, 30	10	
United States:		
Arizona: Sept. 5?		1
California: July 8, 15?, 16, 24, 25; Aug. 4, 10, 18, 20, 26; Sept. 5, 6, 16, 18	13	1
Idaho: Aug. 7	1	
Massachusetts: Aug. 20	1	
Tennessee: July 20, Aug. 13	2	
West Indies: Aug. 2 (P.R.), Sept. 27 (P.R.)	2	
South America: Aug. 1	1	
Europe: July 1, Sept. 11, 12, 12, 12	5	
Asia: July 7, 11, 14?, 22, 23; Aug. 12, 23, 24	7	1
Pacific Ocean:		
N.E. of lat. 0°, long. 180°: Aug. 1, 1, 10, 10, 10?, 20, 21, 22?	6	2
S.E. of lat. 0°, long. 180°: July 3, 5; Sept. 10	3	
S.W. of lat. 0°, long. 180°: July 14, Aug. 4, 10; Sept. 13, 17	5	
N.W. of lat. 0°, long. 180°: July 3 (P.I.), 11, 12, 17 (Guam), 18 (Guam), 24 (Guam), 30; Aug. 5, 8, 8, 12, 18, 20, 23, 23 (Guam), 24, 24; Sept. 2 (Guam), 16, 30	20	
Australia and New Zealand: July 10, 18	2	
Atlantic Ocean: Sept. 3	1	
Indian Ocean: July 29	1	
Unknown: July 1, 2, 4, 4, 5, 5, 6, 6, 7, 8, 8, 10, 11, 15, 16, 16, 16, 17, 17, 19, 21, 22, 23, 25, 26, 27, 30, 30, 31, 31; Aug. 1, 4, 4, 4, 5, 7, 8, 8, 9, 9, 9, 11, 11, 19, 20, 21, 21, 22, 23, 24, 26, 27, 27, 29, 29; Sept. 3, 5, 6, 6, 7, 7, 8, 9, 10, 12, 12, 12, 19, 20, 23, 24, 24, 24, 25, 25, 25, 25		(77)
	85	83

General Summary of Earthquakes.

Locations well or approximately known	85
Locations uncertain	6
Locations unknown	77
Total number of earthquakes recorded	168

Table IIIb. Earthquakes whose epicenters have been determined instrumentally. An asterisk (*) indicates that a provisional location has been published through SCIENCE SERVICE, Washington.

International Seismological Centre

Date	Time of Origin G. M. T.	Epicenter Latitude	Epicenter Longitude
1927	h. m.	°	°
July 1	8 19.0	36 N	23 E
3	8 16.4	14 N	126 E
3	10 37.2	15 S	172 W
5	7 23.0	16 S	175 W
7	20 06.5	35.4 N	54.3 E
11	8 08.0	44 N	145 E
11	13 03.8	32 N	36 E
12	21 08.0	49 N	144 E
14	23 16.6	7 S	131 E
16	1 55.8	33 N	116 W
18	11 20.6	37.5 S	117 E
22	3 55.0	36 N	52 E
23	22 40.3	33 N	53 E
28*	16 17.6	56 N	162 W
29	0 03.0	14 N	88 E
30	14 18.4	41 N	144 E
August 1	11 28.7	23.3 S	68.5 W
1	17 05.9	51 N	178 W
1	18 46.2	51 N	178 W
2	0 52.0	18 N	68 W
4	12 24.5	34 N	118 W
4	15 47.9	2 S	120 E
5*	21 13.1	41 N	142 E
6*	0 13.9	56 N	159 W
8	0 57.5	46 N	151 E
8	18 44.0	1 N	117 E
10*	1 35.0	5 N	83 W
10	9 53.5	5 N	83 W
10*	11 36.0	5 S	130 E
12	0 33.7	28 N	140 E
12	10 22.8	41 N	71 E
18*	19 27.5	35 N	145 E
20	20 05.7	41 N	124 W
20	21 37.3	36 N	144 E
20*	23 54.2	4 N	81 W
21	10 19.1	4 N	81 W
22	2 51.7?	4 N?	81 W?
23	6 28.7	35 N	144 E
24	8 55.8	35 N	145 E
24	18 08.8	23 N	122 E
September 3	19 47.7	10 N	44 W
11*	22 16.0	45 N	34 E
12	3 20.0	44 N	34 E
12	14 23.8	44 N	34 E
13	10 15.7	17 S	168 E
16	15 46.4	49 N	157 E
17	0 45.2	3 S	135 E
18	2 06.9	37 N	118 W
23	13 53.1	41 N	91 E
30	7 38.1	42 N	146 E

ACKNOWLEDGMENT OF EARTHQUAKE REGISTERS RECEIVED

International Seismological Centre

The U. S. Coast and Geodetic Survey gratefully acknowledges the receipt of reports of instrumental records of earthquakes from the observatories listed below. The issues listed have been received since the publication of the last seismological report, Serial No. 468.

This Bureau desires to exchange bulletins with all seismological institutions, and will give immediate attention to any station not receiving Coast and Geodetic Survey seismological reports.

Stations	Bulletins
Apia.....Special Bulletins and	July to December, 1929
Balboa.....Special Bulletins and	October, November, December, 1929
Batavia.....Special Bulletins and	July, August, September, 1929
Bombay and Alibag.....	Year 1925
Cartuga.....	July, August, September, 1929
Charlottesville (Seismograms).....	October, 1929, to June, 1930
Loyola University, Chicago.....	November, December, 1928
De Bilt.....	Year 1927
Ebro.....	January to September, 1929
Denver.....	August, September, October, November, 1929
Georgetown.....	September to December, 1929 January, February, March, 1930
Georgetown (Press Dispatches).....	November, December, 1929 January, February, March, 1930
Guam.....	September, October, November, December, 1929
Hamburg.....	October, November, December, 1929
Honolulu (Seismograms).....	May, 1929, to March, 1930
Hohenheim.....	July, August, 1929
Hukuoka.....	Year 1929
Ithaca.....	March, 1929
Ksara.....	Year 1927
Kobe.....	April to September, 1929
Kodaikanal.....	Year 1928
Kobenhavn.....	April, May, June, 1928
La Paz.....	September, October, November, December, 1929
La Plata.....	August, 1929, to February, 1930
Lemberg.....	April, May, June, July, 1929
Leningrad.....	October, 1928
Malaga.....	Year 1929
Manila.....	September, 1929, to March, 1930
Melbourne.....	July, August, September, 1929
Moncalieri.....	Year 1928
Fordham.....	October, November, December, 1929
Ottawa.....	November, 1929, to March, 1930
Parc Saint Maur.....	August, October, November, December, 1929 January, February, 1930

ACKNOWLEDGMENT OF EARTHQUAKE REGISTERS RECEIVED (Continued)

Stations	Bulletins
Perth	June to December, 1929
Point Loma	January, 1930
Potsdam	Years 1919 to 1924 inclusive
Sydney	February, March, April, 1929
	January, February, March, 1930
San Fernando	Years 1929 and 1930
St. Louis	June to December, 1929
St. Louis (Florissant Station)	August to November, 1929
Sitka (Seismograms)	September, 1928, to December, 1929
Strasbourg (International) Bull. Bibliog.	February, 1929, to February, 1930
Strasbourg (International) Bull. Prov.	October, November, December, 1929
Strasbourg (National) Bull. Seism.	August, October, November, September, 1929
	January, February, 1930
Strasbourg (University)	August, October, November, 1929
	January, 1930
Tananarive	April to August, 1929
Toronto	October, November, December, 1928
	January, February, March, April, 1929
Toledo, Málaga, Almeria, Alecante (Spain)	Year 1929
Tucson	June, 1929, to May, 1930
Uccle	January to August, 1929
Wellington	January, February, March, 1929
Victoria	December, 1928
	January, February, March, April, May, October, November, December, 1929
Zagreb	April, May, June, 1929
Zi-Ka-Wei (Principaux Seismogrammes)	Year 1928
Zi-Ka-Wei	March, April, June, July, 1929
Königberg (Universität)	Year 1927
Upsala	Years 1924, 1925, 1926, 1927

MISCELLANEOUS SEISMOLOGICAL ACTIVITY

Leveling in connection with earthquake investigation was done in California by the Coast and Geodetic Survey as follows: Goleta to Edna, San Diego through Ramona to Oceanside, Santa Margarita to Bakersfield, Mojave to Barstow. This work was continued through the fourth quarter.

No tidal disturbances were noted on the marigrams of the Bureau nor were any seismic disturbances reported by vessels engaged in hydrographic work.

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International Seismological Centre

SEISMOLOGICAL REPORT

October, November, December, 1927

Serial Number 503

U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

U. S. DEPARTMENT OF COMMERCE
R. P. LAMONT, Secretary
COAST AND GEODETIC SURVEY
R. S. PATTON, Director

International Seismological Centre

Serial No. 503

SEISMOLOGICAL REPORT

OCTOBER, NOVEMBER, DECEMBER

1927

BY

FRANK NEUMANN

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1931
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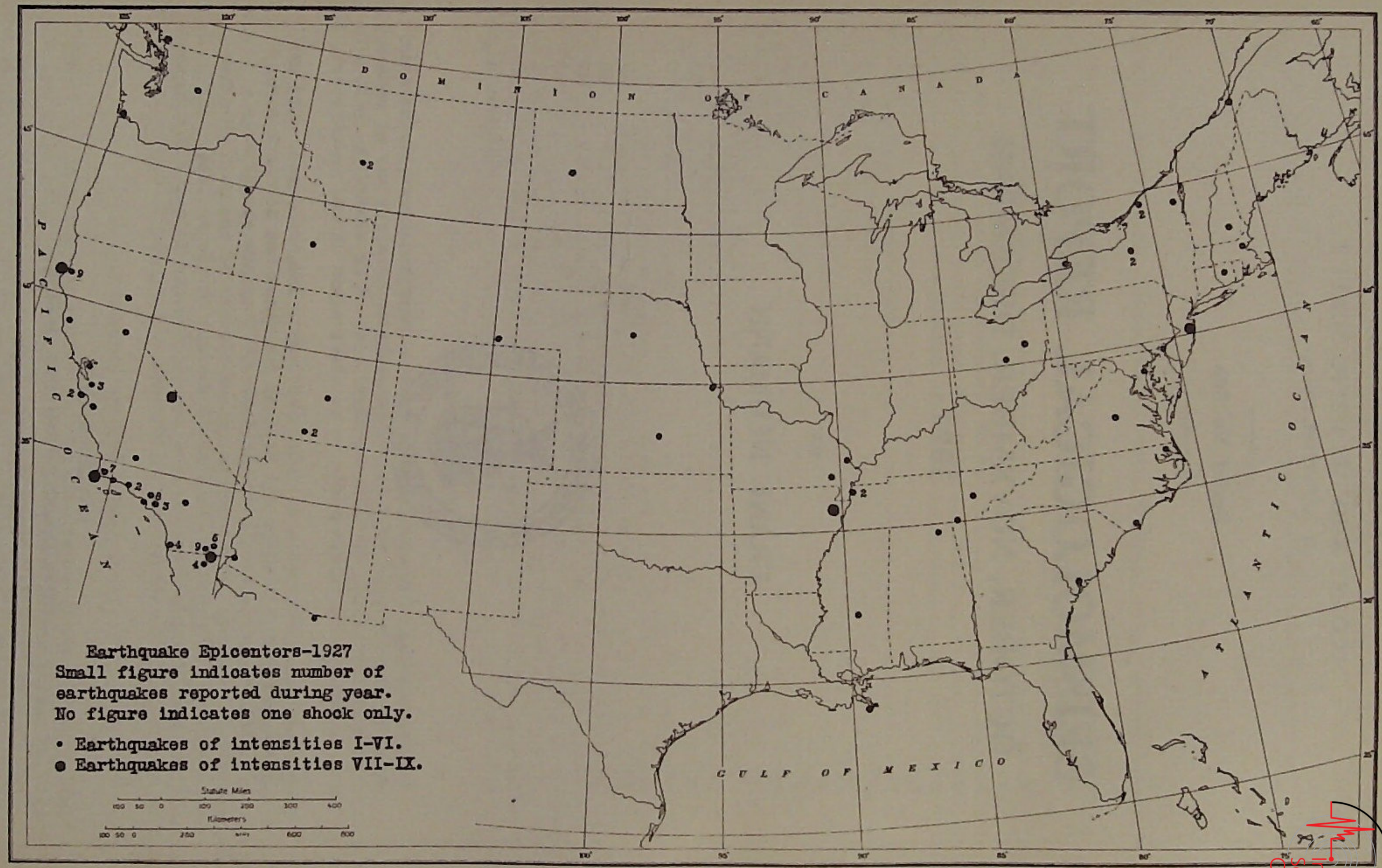
For sale by the Superintendent of Documents, Washington, D. C. - - - Price 10 cents
Subscription price, 25 cents per year



International Seismological Centre

S E I S M O L O G I C A L R E P O R T

October, November, December, 1927.

By Frank Neumann, United States Coast and Geodetic Survey.

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INTRODUCTION

The quarterly seismological reports of the Coast and Geodetic Survey are prepared in the division of terrestrial magnetism and seismology under the direction of Captain N. H. Heck, hydrographic and geodetic engineer, chief of division. R. R. Bodle assisted in the preparation of this report.

Preceding reports--Serials Nos. 328, 337, 363, 388, 395, 405, 424, 431, 463 and 495--cover the seismological work of the Coast and Geodetic Survey from July, 1924, to September, 1927, inclusive. They are essentially a continuation in new form of the seismological reports of the U. S. Weather Bureau which first appeared in the Monthly Weather Review in 1914. All publications available for distribution may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C.

NONINSTRUMENTAL REPORTS - TABLE I

Table I is primarily a register of information bearing on the observed intensity of earthquake vibrations. It is the only practicable means by which the relative intensity of earthquake shocks may be properly recorded for statistical purposes or for investigating the distribution of intensity in the case of individual shocks.

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The machinery for collecting this information is at present inadequate. Under these circumstances, only active cooperation on the part of the public will serve the purpose of the investigator satisfactorily. This is particularly true in sparsely populated regions. The Bureau, therefore, requests that anyone feeling or observing the effects of an earthquake shock send a report addressed to the Director, U. S. Coast and Geodetic Survey, Washington, D. C., for permanent abstracting in this publication. If forms are desired, they will be furnished upon request.

International Seismological Centre

The Rossi-Forel scale of intensities is used in tabulating the relative intensities of earthquake motions. Intensity evaluations in the fourth column of Table I are made in this office on the basis of the published abstract unless otherwise stated.

ROSSI-FOREL SCALE OF INTENSITIES

1. Microseismic shock. - Recorded by a single seismograph or by seismographs of the same model, but not by several seismographs of different kinds; the shock felt by an experienced observer.

2. Extremely feeble shock. - Recorded by several seismographs of different kinds; felt by a small number of persons at rest.

3. Very feeble shock. - Felt by several persons at rest; strong enough for the direction or duration to be appreciable.

4. Feeble shock. - Felt by persons in motion; disturbance of movable objects, doors, windows; cracking of ceilings.

5. Shock of moderate intensity. - Felt generally by everyone; disturbance of furniture, beds, etc.; ringing of some bells.

6. Fairly strong shock. - General awakening of those asleep; general ringing of bells; oscillation of chandeliers; stopping of clocks; visible agitation of trees and shrubs; some startled persons leaving their dwellings.

7. Strong shock. - Overthrow of movable objects; fall of plaster; ringing of church bells; general panic; without damage to buildings.

8. Very strong shock. - Fall of chimneys; cracks in the walls of buildings.

9. Extremely strong shock. - Partial or total destruction of some buildings.

10. Shock of extreme intensity. - Great disaster; ruins; disturbance of the strata, fissures in the ground; rock falls from mountains.

INSTRUMENTAL REPORTS - TABLE II

The analysis of seismograms of the Coast and Geodetic Survey observatories, the University of Chicago, and Harvard University* is made at the Washington office of this Bureau. The only other reports published in full in this volume are from observatories which do not otherwise publish their results in permanent form.

The following observatories on the North American continent publish their own results, and inquiries in regard to them should be made directly to the institutions concerned or to the central stations:

United States: Georgetown, New York (Fordham), Berkeley and Mount Hamilton (both University of California), St. Louis, Denver, Mobile, Santa Clara, Spokane, New Orleans.

*Resumed publication of its own results after September, 1927.

Canada: Halifax, Ottawa, Saskatoon, Toronto, Victoria, St. Anne. Halifax, Saskatoon and St. Anne are subsidiary stations of the Dominion Observatory at Ottawa where the results of the four stations are analyzed and published.
Mexico and Central America: Tacubaya (Mexico City) and subsidiary stations.

According to the best information available, observatories not mentioned in this report have not yet published their results.

International Seismological Centre

QUARTERLY SUMMARY OF EARTHQUAKES - TABLE III

Table III is a chronological summary of earthquakes listed in Tables I and II. It includes only earthquakes recorded in or near the United States, its insular possessions, Alaska, Canada, and Mexico. All other earthquakes are intentionally omitted.

Local earthquakes in Hawaii and the Philippines and swarm types in California constitute problems for local study and are not included in this report. Local shocks in these regions are tabulated as a rule only when they are recorded at both local and distant observatories, or when reported as severe by local observers.

Table IIIa is a summary of earthquakes according to region. Table IIIb is a tabulation of epicenters determined almost wholly or in part from instrumental reports acknowledged at the end of this report. When epicenters from other sources are utilized, acknowledgment is made in Table III.

Computed epicenters are in every sense provisional. They are determined (1) to furnish other institutions and the public early information concerning earthquakes recorded at American observatories, or reported in the press, (2) to classify earthquakes according to region - Table IIIa, (3) to aid in the interpretation of other instrumental records, (4) to aid in appraising the performance of American seismological observatories, and (5) to locate and discuss purely domestic earthquakes. For final reports on epicenters readers are referred to the International Seismological Summary prepared at the University Observatory, Oxford, England. A table of epicenters is also published by the Dominion Observatory at Ottawa, Canada.

SUBSEQUENT REPORTS

The quarterly seismological reports of the Coast and Geodetic Survey will be discontinued after this number. They are being replaced by annual publications, in modified form, of which the first number (for 1928) has been issued. The new publication is entitled "United States Earthquakes."

"United States Earthquakes" contains a complete list of all shocks felt within the borders of the United States, and covers in whole, or in part, shocks felt in regions under the jurisdiction of the United States. Instrumental data, however, are restricted to very heavy shocks and records which are important in connection with the study of North American earthquakes. If the complete registers of Coast and Geodetic Survey seismographic stations are desired, they will be furnished without cost to seismologists who are actually making investigations. Those who intend to make regular use of these monthly mimeographed reports should request to be placed on the mailing list for them.

Table I. Noninstrumental earthquake reports.
October 1, 1927 to December 31, 1927.

International Seismological Centre

Earthquake Intensities (Abbreviated Rossi-Forel)

1. Felt only by an experienced observer, very faint.
2. Felt by a few persons at rest, faint.
3. Direction or duration appreciable, weak.
4. Felt by persons walking. Doors, etc., moved.
5. Felt by nearly everyone. Furniture moved.
6. Bells rung, pendulum clocks stopped. Alarm.
7. Fall of plaster, slight damage. Scare.
8. Fall of chimneys, walls cracked. Fright.
9. Some houses partly or wholly wrecked. Terror.
10. Buildings ruined, ground cracked. Panic.

Key to Abbreviations in Table I.

abr - abrupt
aft - after
bef - before
bldgs - buildings
bmp - bump;-ed;-ing
crk - crack;-ed;-ing

exp - explosive
fnt - faint
grd - gradual
h - hours
hls - hills
ld - loud

m - minutes
mi - miles
mvd - mov;-ed;-ing
mts - mountains
nr - nearly
obs - observ;-ed;-er

pln - plain
pop - population
sev - several
rkd - rocked
rkg - rocking
rky - rocky
rmb - rumbling

rpd - rapid
rtl - rattl;-ed;-ing
s - seconds
scr - scraping
sft - soft
shk - shaken, shook

sl - slight
swa - sway;-ed;-ing
thn - thunder;-ous;-ing
trm - trembl;-ed;-ing
tws - twisting
val - valley

"p" indicates a press report.

"WB" is a symbol for the U. S. Weather Bureau which cooperates actively in collecting earthquake information.

"BSSA" refers to the Bulletin of the Seismological Society of America.

Table I. Noninstrumental Earthquake Report.

Date	Time G.M.T.	Locality	Intensity	Source and Remarks
1927	h. m.			
Oct.		CALIFORNIA		
5		El Centro	3	P. No damage.
	21 15	Imperial	4	F.W. Irland. Sl shock; felt by few; fans swung; trm; 1 shock, abr; valley, loam.
	21 15	San Diego	5	D. Blake, WB. Sl shock; felt by many; few alarmed; suspended objects swa; abr rkg, N to S and slightly E to W; 1 shock; bldgs rtl; subterranean rmb followed; on gentle slope.
8	19 15	Los Angeles		P. Felt 4 seconds.
		Pasadena		P. Sharp to light.
		Santa Anna		P. Sharp to light.
		Pomona		P. Sharp; conflicting reports that shock was not noticed.
		Riverside		P. Sharp; conflicting reports that shock was not noticed.
		Glendale		P. Plate glass store window broken.
		Burbank		P. Felt two shocks, one minor, other 4 seconds.
		Eagle Rock		P. Felt two shocks, one minor, other 4 seconds.
		Monrovia		P. Felt. It should be noted that many people thought this shock was the result of an explosion.
	19 13	Pasadena	5	M.O. Corbin. Small articles mvd; felt by many; few alarmed; rmb like explosion; bmp; 1 shock abr; valley.
	19 15	Los Angeles	5	D.H. Merrill also felt sl shock at 19:12; felt by nr everyone; few alarmed; grd rkg E to W; 1 shock; no sounds; valley, clay.
	19 15	Los Angeles	4	Ray L. Fisher. Felt by many; rkd grd; 1 shock, 5 s, val.
		Los Angeles	2	J.S. Davis. Felt by sev; rkg; 1 shock, sev seconds duration; grd rkg; felt in area 20 mi radius.
	19 15	Yorba Linda	3	P.J. Ton. Felt by few; trm: N and S: 1 shock, abr: valley.
		TENNESSEE		
8	13 58	Chattanooga	5	L.M. Pindell, WB. Felt by many: few alarmed; bldgs rtl; rpd motion; 1 shock: val, rky.
		Signal Mountain		P. Felt.
		Lookout Mountain		P. Felt.
		St. Elmo		P. Shock felt; also another at 11:30 p.m., local time, night before.
		N. Chattanooga		P. Building material dislodged; other mild shocks from 12 to 2 a.m., local time.
		Red Bank		P. Felt.

International Seismological Centre

Table I. Noninstrumental Earthquake Report.

Date	Time G.M.T.	Locality	Intensity	Source and Remarks
1927	h. m.			
Oct.		TENNESSEE		
(8)	13 58	Fort Wood		P. Felt. Shock felt in large and small buildings, light trembled, glass ware rtl; felt generally in area bounded by Signal Mountain, Red Bank, East Ridge, and St. Elmo.
		NEBRASKA		
14	7 10	Ord	4	W.A. Anderson. Felt by many; many frightened; dishes rtl; bldgs creaked; 1 shock abr, like concussion; val.
		PORTO RICO		
19	10 00	Comerio Falls	2	P.R.R. Light and Power Co. Felt by few; 1 shock; rkg; hill, rky.
	10 10	Central Canovanas		WB. Hill, rky.
	9 59	La Isolina	2	WB. Felt by sev, 1 shock.
	10 15	Mayaguez	4	Howard Arroyo. Felt by all; loose objects rtl; 2 shocks, 2 s each; rpd; plain.
21	10 00	Comerio Falls	2	P.R.R. Light and Power Co. Felt by few; surface sounds, subterranean sounds by few; moderately ld: 1 shock; hill, rky.
		NEW YORK		
24	11 00	Dannemora	3-4	R.A. Sloss. Felt by many; rmb; rkd N to S; 1 shock, abr; mts, rky.
		MONTANA		
24	14 00	Helena		W.T. Lathrop, WB. A few people reported a shock; seismic origin doubted.
		ALASKA		
24		Cordova	4	P. Pictures swa; not recognized as an earthquake at first.
		Icy Straits		P. Water churned and muddy.
		Cross Sound		Reported strong tide rips.
		Inian Island	6	P. Trees swa; pots on stove overturned; water became muddy; killed deep-sea fish; prolonged rmb and roar.
	16 00	Juneau		P. Shock 30 s; N and S; 1 shock followed by 3 lesser shocks; clocks stopped; dishes rtl, chandeliers swung.
	16 00	Juneau	7	R.C. Mize, WB. Felt by all; few alarmed; bldgs rtl; clocks stopped, chandeliers swa E and W, dresser mirror 2 inches from SW wall frequently hit wall, few windows broken at Soapstone Point; 5 shocks 16:00 to 16:00, 1st heavy; hill, gravel.

International Seismological Centre

Table I. Noninstrumental Earthquake Report.

Date	Time G.M.T.	Locality	Intensity	Source and Remarks
1927	h. m.			
Oct.		ALASKA		
(24)		Ketchikan		P. Felt.
	15 51	Petersburg	6	P. All alarmed; telephone poles swa, sev hundred windows reported broken; clocks stopped; shocks lasted 2 m.
	15 59	Sitka		P. Pictures fell from walls; shocks lasted 5 m.
	16 00	Sitka	7	F.P. Ulrich. Felt by all; all alarmed; bldgs shk and swa; plaster crk E and W direction, clocks stopped, books fell, objects mvd in WNW and ESE direction; sev people thrown off feet: 2 shocks abr at 7:00 and 7:04; bldgs rtl 4 m after shock: subterranean sounds like thunder, moderately loud; plain, clay.
	16 02	Skagway		P. Felt by all.
	16 02	Skagway	6	P.I. Dahl. Obs by all; many alarmed; cable between Skagway and Haines put out of order; some clocks stopped; trees and bldgs swa; chandeliers swung N and S; 1 shock, swa rpd; surface sounds, moderately ld subterranean sounds at shock, roaring; val, sand,rky.
		Stikine R.		P. Severe; water spilled over banks.
	16 00	Wrangell	5	P. Felt by all; cable between Wrangell and Vanks Id. broke and reported broke between Juneau and Haines; breaks also between Juneau and Skagway and between Pittsburg and Wrangell; some alarmed: felt in all of SE Alaska.
		Between Yakobi Id. Point Adolphus and Cape Spencer	6-9	P. Water discolored; deep sea fish came to surface; sea bottom changed from rock to mud.
		WASHINGTON		
		Seattle		P. Water in swimming pool swayed.
		ALASKA		
25	18 04	Juneau	2	R.C. Mine, WB. Felt by few: 2 shocks; rpd trm: hill, gravel.
	18 04	Juneau		P. 2 sl trm.
		NORTH CAROLINA		
27	early	Elizabeth City	4	P. Obs by many; many alarmed: 3 shocks few s apart; doors and windows rtl.
		ALASKA		
31	3 23	Sitka	2	F.P. Ulrich. Felt by many; bldgs creaked; dishes rtl; 1 shock; rpd trm; plain.

International Seismological Centre

Table I. Noninstrumental Earthquake Report.

Date	Time G.M.T.	Locality	Intensity	Source and Remarks
1927	h. m.			
Nov.		CALIFORNIA		
4	13 52	Southern California	9	Severe earthquake near Pt. Conception; described by Perry Byerly in BSSA June, 1930, C. and G. S. data included in article, except following.
		Avila		P. Tide abnormally high.
		Bicknell		A.C. Brunner. Felt by all; trees shk; lights and pictures swa.
		Bradley	5	M. McNair. Felt by all; 1 shock N-S.
	13 52	Buellton	6	William Budd. Trm W-E; trees swa; general alarm.
	13 50	Hueneme		Walter White. Rkg motion felt by few.
		Oceano		P. Tide receded; came in strong.
	13 40	Ojai	2	W.H. Duncun. 1 shock, 10 s, W-E.
	13 55	Orcutt	5	George P. Ide. Felt by nr all; heavy shock; trm; lights swung;
		Pismo Beach		P. Tide rose 10 feet.
	13 50	Santa Ynez	5	D.M. Murphy. Felt by all; grd swa NW-SE; lights and bird cage swung.
	13 25	34° 55' N., 121° 01' W. 25 miles north of Pt. Arguello		P. S.S. ROSE CITY felt shock.
				P. S.S. LOS ANGELES; 2 shocks.
		MARYLAND		
5	5 15	Baltimore	2	P. Reported felt by few; explosive; may not have been seismic.
		CALIFORNIA		
6	0 06	Buellton	4	H.H. Henderson. Felt by nr all; furniture mvd; 1 shock; grd swa; val.
6	3 10	Buellton	4	Same as above.
6	22 50	Buellton	4	H.H. Henderson. Felt by nr all; few alarmed; 1 shock; grd sway; val.
	22 10	34° 36' N., 120° 43' W.		U.S. H. O. STR. SAN JUAN.
	23 10	Same		Shock lasted 5 s.
7	3 26	San Diego		P. Felt aboard U.S.S. RIGEE; 1 shock of 5 s.
	3 28	San Diego	4	Dean Blake, WB. Felt by many; few alarmed: abr bmp N and S; moderately loud subterranean sounds occurred before; one shock; slope, sandy.
	3 29	San Diego	4	P. Cracked water main.
8	7 25 and 7 30	San Diego		P. Sharp shakes; slope, sandy.
8	10 02	Buellton	4	H. H. Henderson. Felt by nr all; 1 shock; sharp bump; val.

International Seismological Centre

Table I. Noninstrumental Earthquake Report.

Date	Time G.M.T.	Locality	Intensity	Source and Remarks
1927	h. m.			
Nov.		CALIFORNIA		
9	10 55	San Diego	3	D. Blake. Felt by many; sev shocks; rpd rkg; subterranean sounds; sloping sand.
	10 55	San Diego	3	Felt by sev; awakened sleepers; sharp shocks.
		SOUTH CAROLINA		
10	0 45	Beaufort	4	P. Not known whether ship's guns or earthquake; window rtl; some alarmed.
	0 55	Tybee		
		Thunderbolt		
		CANADA		
12		Niagara Falls	4	P. Some alarm; windows and pictures rtl and fell; two shocks.
		ALASKA		
12	22 00	Haines		E.E. Bromley, WB. Felt.
	22 01	Juneau	3	WB. Felt by many; dishes and pictures rtl; 1 shock; grd rkg; hill, gravel.
		Juneau		P. dated Nov. 13 reported that tremor of last week broke away faces of glaciers along coast; Cross Sound full of ice.
	22 01	Juneau		R.C. Mize, WB. Felt by sev; 1 shock; grd rkg; surface sounds heard; pictures swa, dishes rtl.
	22 00	Shaw Island		WB. Felt; no details.
	21 57	Sitka	5	C. and G.S. Felt generally; dishes, doors, etc., rtl; 1 shock; rpd trm; bldgs creaked; plain, rocky.
	22 00	Skagway	2	WB. Slight tremor.
		MISSISSIPPI		
13	16 21	Jackson	3	P. Dishes rtl, objects fell from tables; also reported in Jefferson Davis, Rankin and Simpson Counties.
	16 20	Meridian	3	WB. Felt by few; houses shook, doors rtl; plain, clay.
		CALIFORNIA		
19	3 30	Arroyo Grande	3	E.F. Hopkin. Felt by sev; rpd swa; lights swung east and west; very few alarmed; val, loam.
	3 32	Atascadero	3	L. Radke, P.M. Felt by sev; one shock; swaying; chandeliers rattled.
	3 38	Betteravia	6	I. Van Leer. Felt by all; rpd shaking; sharply SW to NE; surface sounds heard by all; lights swa, plaster cracked, objects shifted on tables and shelves; alarm; valley, made ground.

International Seismological Centre

Table I. Noninstrumental Earthquake Report.

Date	Time G.M.T.	Locality	Intensity	Source and Remarks
1927 Nov.	h. m.	CALIFORNIA		
(19)	3 33	Bicknell	6	A.G. Brunner. Felt by many; 1 shock N to S; abr rkg; surface sounds, subterranean sounds of moderately ld bmp; furniture mvd, vases overturned; general alarm; val, sandy.
	3 35	Buellton	5	H.H. Henderson. Felt by many; 1 shock; very slow swa ending abruptly; surface sounds, subterranean sounds like distant thunder; objects disturbed, pictures and lamps swa NE and SW; some alarm; val, loam.
	3 33	Gaviota	2	G.R. Wilson. Felt by sev; 1 shock; abr swa; no damage.
	3 20	Guadalupe	5	C. Dolcini. Felt by many; 1 shock; grd swa; surface sounds heard by many; no alarm; valley.
	3 30	Halcyon	6	A.D. Varian. Felt by all; one long shock; abr up and down; surface sounds heard by all; "most people ran out of doors"; sandy plain.
	3 30	Los Olivos	5	E. Downs. Felt by many; 1 shock; grd trm, rkg: surface sounds heard by many; objects swa; few alarmed; val adobe soil.
		Lompoc	2	P. Light shock, short duration.
	3 32	Oceano	5	L.V. Wheeler. Felt by all; 1 shock; abr rkg; surface sounds heard by many; sev heard roaring subterranean sounds immediately before; objects swa E and W, 12-inch pendulum clock stopped; few people alarmed; sandy coast.
		Parkfield	3	J.A. Greenlaw. Rolling motion such as would be felt on slowly rolling ship.
	3 ?.	Paso Robles	3	H.G. Merrill. Felt by many; 1 shock; rpd trm; surface sounds heard by many.
		Point Arguello L. H.		G.T. Olson. Did not particularly note shock but experienced from 3 to 6 shocks a day from Nov. 4 to Dec. 1, some fairly sharp.
	3 32	Pt. Conception Light Station	3	C.F. Allen. Felt by many; 1 shock 8 s; grd swa N and S; surface sounds; objects seen to rock; no alarm; sev aftershocks; rocky coast.
		Pismo Beach		C.M. McCoy. Felt by sev; grd swa; sandy valley.
	3 08	San Luis Obispo Light Station	3	G.F. Watters. Felt by two; 1 shock; grd rkg N and S; surface sounds heard; sl swa of bldgs.
	2 50	Port San Luis	4	R.L. Simpson. Felt by all; 1 shock; grd swa N to S; sandy beach.
	3 20	San Luis Obispo	3	P.A.H. Arata. Felt by sev; 1 very light shock; rpd trm; surface sounds heard.
		Santa Maria	5	P. Chimneys weakened in Nov. 4 shock fell; windows cracked; N-S movement ending in sudden jar.

International Seismological Centre

Table I. Noninstrumental Earthquake Report.

Date	Time G.M.T.	Locality	Intensity	Source and Remarks
1927	h. m.			
Nov.		CALIFORNIA		
(19)		San Miguel	3	M.S. Triguerio. Felt by many; 1 short shock; abr bmp S to N; many surface sounds heard; hilly country.
	2 45	San Simeon	5	R. Summers. Felt by sev; 1 shock; rpd rkg E and W; moderate subterranean sounds; pictures swa, lamps rocked; sandy coast plain.
	Between 2 and 3 hrs.	Solvang	2	P.P. Hornsyld. Very weak shock unnoticed by most people. Shock not felt at Cambria, Creston, Fallon, La Panza, Lucia, McKittrick, Piedras, Blancas L. H., Point Sur. L. H., Priest Valley, Santa Barbara, Santa Margarita, and Shandon.
		ALASKA		
19	10 10	Cordova		R.L. Elsher. Three shocks, 1st 20 s, 2d 10 s, 3d 15 s duration.
21	15 14	Sitka	4	C. and G.S. Felt by many; windows rtl, pictures mvd; people generally wakened.
	15 15	Juneau	4	H.W. Douglas. Felt by sev; windows rtl; attributed by some to heavy target practice at sea.
		NORTH CAROLINA		
22	23 50	Southport	3	P. Felt by many; 5 shocks; windows rtl; some panic; possibly blasting.
		UTAH		
23	2 45	Orderville	2	F.A. Porter. Felt by many; 1 shock; trm.
23	9 30	Orderville		F.A. Porter. One shock felt by many; grd trm; subterranean sounds heard by many.
		ALASKA		
23	9 36	Fairbanks		No details.
25	11 40	Fairbanks		No details.
Dec.		CALIFORNIA		
2		Concord		
5	11 55	Buellton	4	H.H. Henderson. Felt by many; 2 shocks 15 m apart, second hardest.
	11 45	Santa Maria		P. Lasted 30 s.
		PANAMA		
5		Balboa		

International Seismological Centre

Table I. Noninstrumental Earthquake Report.

Date	Time G.M.T.	Locality	Intensity	Source and Remarks
1927	h. m.			
Dec.		CALIFORNIA		
8	0 14	Scotia	2	W.G. Corbitt. Sl bmp noticed by sev.
8	22 25	Eureka	5	WB. Felt by many; swa E-W.
	22 25	Near Dyerville	2	W.G. Corbitt. Felt by several.
9	6 14	Scotia	2	W.G. Corbitt. One shock felt by a few.
	6 13	Eureka	5	WB. Felt by nr all at rest; E-W swa of light fixtures.
		ALASKA		
9		Lake Kenai (20 miles north of Seward)	6	P. - Sev shocks; cabins swa; no damage.
		PANAMA		
10	22 00	Balboa and Panama City	5-6	Severe shock; no damage.
		CALIFORNIA		
11	5 00	Los Angeles	2	P. Light shock.
		LOUISIANA		
15	4 30	Burrwood	4	WB. Felt by many; 2 shocks; abr bmp; windows rtl; similar information from D.M. Strahon.
		CALIFORNIA		
15		Los Angeles		P. Time uncertain; light shock: SW portion of city.
24	0 35	Yorba Linda	3	P.S. Ton. Felt by many; grd bmp; 2 shocks SW-NE.
		Anaheim		P. Generally felt.
29	0 12	Grass Valley	3	P. Windows and dishes rtl.
31	10 10	Pt. Arguello		P. Heavy quake reported.
31	17 00	Santa Monica		P. Slight tremor.
		Venice		
		Sawtelle		
		Pacific Palisades		
		ALASKA		
31	19 00	Haines		E.E. Bromley. No details.
	19 07	Sitka		C. and G.S. Felt by many: lights swung; 2 shocks; rpd trm; plain, rky.
	19 08	Juneau		R.C. Mize, WB. Felt by many; objects mvd; 1 shock of 10 s; abr bmp.
	19 02	Juneau		P. One shock 30 s; dishes rtl, goods on store shelves shaken.

International Seismological Centre

TABLE I.--NONINSTRUMENTAL EARTHQUAKE REPORT

International Seismological Centre

Contributors of Press Clippings and Dispatches not mentioned in Table I.

P. Hess, WB
O. S. Hill, C. & G. S.
C. E. Taylor, WB
E. E. Unger, WB
J. R. Weeks, WB
P. C. Whitney, C. & G.S.

Telegraphic press dispatches are received through the courtesy of the Director of the Georgetown University Seismological Station.

Table Ia. Earthquakes of intensity V and over (Rossi-Forel Scale).

Date			Time	Locality	Epicenter		Area	Intensity
Year	Mo.	Day	G.M.T.		Lat.	Long.	sq. mi.	
			h. m.		°	°		
1927	Oct.	5	21 15	California	32.7 N	116 W	3000	5
	Oct.	8	13 58	Tennessee	35.0 N	85.3 W	Local	5
	Oct.	8	19 15	California	34.0 N	118 W	300	5
	Oct.	24	16 00	Alaska	58.3 N	136.5 W	?	8
	Nov.	4	13 50	California	34.5 N	120.7 W	100000	9
	Nov.	19	3 35	California	34.5 N	120.7 W	3000	6
	Dec.	8	22 25	California	40.8 N	124.3 W	Local	5
	Dec.	9	6 14	California	40.8 N	124.3 W	Local	5

Table II. Instrumental Reports.

International Seismological Centre

NOTATION.

Beginning July 1, 1925, the notations used in instrumental reports of the Coast and Geodetic Survey will be those adopted by the International Seismological Association with modifications suggested by Rev. James B. Macelwane, S.J., and others.

1. Character of earthquake recorded:

I. Slight. II. Moderately strong. III. Violent.

d Local shock (origin less than 100 kilometers distant).

v Near shock (origin from 100 to 1000 kilometers distant).

r Distant shock (origin from 1000 to 5000 kilometers distant).

u Very distant shock or teleseism (origin more than 5000 kilometers distant).

2. Wave groups or phases:

P Normal first preliminary tremors; longitudinal waves that have passed below the continental layer.

$\overline{P}$ Individual or upper first preliminary tremors whose path lies wholly in the continental layer.

P' Longitudinal waves that have traversed the earth's core.

$R_1\overline{P}$ Upper first preliminary tremors reflected from the lower boundary of the continental layer.

$R_s\overline{P}$ Upper first preliminary tremors reflected from the upper surface of the continental layer.

PR_1 Longitudinal waves reflected once at the earth's surface.

PR_2 Longitudinal waves reflected twice at the earth's surface.

PR_3 Longitudinal waves reflected three times at the earth's surface.

P_cP Longitudinal waves reflected from the outer surface of the earth's core.

S Normal second preliminary tremors; transverse waves that have passed below the continental layer.

$\overline{S}$ Individual or upper second preliminary tremors whose path lies entirely in the continental layer.

$R_1\overline{S}$ Upper second preliminary tremors reflected from the lower boundary of the continental layer.

$R_s\overline{S}$ Upper second preliminary tremors reflected from the upper surface of the continental layer.

PS Waves transformed from longitudinal to transverse oscillation, or vice versa, through one reflection at the earth's surface being either PS or SP in true character.

Table II. Instrumental Reports.

NOTATION.

2. Wave groups or phases: (cont'd.)

PPS	Waves which have traversed two legs of their twice reflected paths as longitudinal and one leg as transverse waves, being PPS, PSP, or SPP in true character since these all have the same travel time.
SR_1	Normal transverse waves reflected once at the earth's surface.
SR_2	Normal transverse waves reflected twice at the earth's surface.
SR_3	Normal transverse waves reflected three times at the earth's surface.
S_cS	Normal transverse waves reflected from the outer surface of the earth's core.
$\overline{S_cP_cP}$	Waves which start with transverse vibration but on refraction into the core are changed to longitudinal, or which start as longitudinal and are refracted out as transverse.
$\overline{S_cP_cS}$	Waves which traverse the mantle at both ends with transverse vibration but are refracted through the core with longitudinal oscillation.
$\overline{S_cP_c}\overline{P_cS}$	Waves which traverse the mantle with transverse vibration, are refracted through core as longitudinal waves, and are reflected internally on its farther side.
L	Long waves of irregular form at the beginning of the surface phase or "main phase." See supplementary note.
M	Shorter and more regular waves of large amplitude in the surface group which travel more slowly than the L waves.
M_1, M_2, etc.	Individual waves of relatively great amplitude in the surface phase and usually in the M group.
C	Waves of the tail or end portion.
W_2	Surface waves traveling around the major arc to the station.
W_3	Surface waves returning to the station after a complete circuit of the globe.
F	End of discernible movement.

3. Nature of the motion:

i	Impulsive and sharply defined beginning of a phase.
e	Poorly defined emergence of a phase.
A	Either (a) amplitude of earth motion measured from the position of equilibrium in microns (1 micron 1/1000 mm.), toward the north, east, or zenith, - toward the south, west, or nadir; or (b) when so marked, the trace amplitude or half range of movement of the pen on the record measured from the median line in millimeters.

International Seismological Centre

Table II. Instrumental Reports.

NOTATION.

3. Nature of the motion: (cont'd.)

A_E E-W component of A.

A_N N-S component of A.

A_Z Vertical component of A.

T Period of wave.

4. Deduced data:

O Time of earthquake at epicenter (O_1 according to Klotz's tables; O_2 according to Macelwane's tables).

Δ Arcual distance from the station to the epicenter. (Subscript references same as for O.)

5. Constants of seismograph:

T_o Free or undamped period of the seismograph.

V Static magnification.

ν Ratio of successive damped amplitudes.

r Half width of zone within which friction will completely arrest the recording pen.

h Altitude of observatory above sea level.

International Seismological Centre

Table II. Instrumental Reports.

BALBOA HEIGHTS, Canal Zone.

The Panama Canal,
R. Z. Kirkpatrick, Chief Hydrographer, In Charge.

Lat. 8° 57.'6 N. Long. 79° 33.'5 W. h, 36 m.

Instrument	Component	Mass	T_o	V		
Bosch-Omori	EW	100 kg.	20 s.	35		
do	NS	100 kg.	do	35		

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Oct. 9	e_E	3 52 04				Very slight tremors.
	e_N	3 52 48				
	F	3 57 10				
Oct. 24	P_N	16 14 04				
	P_E	16 15 06				
	S_N	16 23 44				
	S_E	16 23 46				
	L_{1E}	16 34 46				
	M_{1E}	16 38 14	20	11		
	L_{1N}	16 35 04				
	M_{1N}	16 40 40	20		15	
	F	17 17 00				
Nov. 6	e_{NE}	6 27 52				Very slight tremors.
	F	6 28 02				
Nov. 14	e_{EN}	7 26 32				Slight tremors from a distant disturbance.
	F	8 14				
Nov. 16	e_{EN}	21 30 00				Very faint tremors.
	F	21 32				
Nov. 19	P_N	22 25 04				
	P_E	22 25 24				
	M_{1E}	22 26 00	20	5		
	M_{1N}	22 26 04	20		4	
	F	22 28 04				
Nov. 20	e_{EN}	0 54 00				
	F	0 56 00				
Nov. 21	e_{EN}	18 55 00				
	F	19 05 00				
Nov. 22	e_{EN}	23 21 00				Slight tremors from very distant disturbance.
	F	0 30				
Nov. 28	e_{EN}	6 23 20				Slight tremors.
	F	6 24 32				
Nov. 30	e_{EN}	16 43 09				Very slight tremor.
Dec. 8	P_N	4 20 00				Very weak on EW component.
	L_{1N}	4 20 14				
	M_{1N}	4 20 16	20		2	
	F	4 23 56				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports.

The Panama Canal,
R. Z. Kirkpatrick, Chief Hydrographer, In Charge.

BALBOA HEIGHTS, Canal Zone.

International Seismological Centre

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Dec. 11	P_N	20 57 18				Distance about 90 miles; direction west; intensity V or VI.
	P_E	20 57 20				
	S_E	20 57 32				
	S_N	20 57 32				
	L_{1E}	20 57 34				
	M_{1E}	20 57 40	20	60		
	L_{1N}	20 57 34				
	M_{1N}	20 57 38	20		100	
	F	21 08 00				
Dec. 15	e_{EN}	0 01				Very slight tremors.
	F	0 11				

* indicates trace amplitude in one-tenth millimeters.

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

CHELTENHAM, Maryland. G. Hartnell, In Charge.

Lat., 38° 44' N. Long. 76° 05.'5 W. h, 72 m.

Instrument	Compo-nent	Mass	T_o	V		
Bosch-Omori	EW	10 kg.	15 s.	10	Undamped	
do	NS	do	15 s.	10	do	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Oct. 24	P_E	16 07 56				Pens off paper at 16:22:30.
	S_{EN}	16 14 18				
	L_{EN}	16 17.9				
Nov. 14	e_E	5 32 18	20	1		Nothing on NS.
	F	5 41				
Dec. 28	e_E	18 54.7	24	3		
	e_N	18 59.3	20		1	
	F	19 27				
Dec. 31	e_N	19 28 46	3		1	Apparently not a distant
	e_E	19 28 51	4	3		quake.
	F	19 31 53				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U.S. Weather Bureau.

Lat. 41° 47' N. Long. 87° 37' W. h, 180 m.

Instrument	Component	Mass	T_o	V	ϵ	
Milne-Shaw	EW	1 lb.	12 s.	150	20:1	
do	NS	1 lb.	12 s.	150	20:1	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Oct. 2	iP_N	4 53 52	6		1	
	ePR_{1E}	4 54 35	5	1		
	iPR_{1N}	4 54 36	7		9	
	e_E	4 56 48	6	3		
	S, L_{1E}?	4 59 08				
	M_{1E}	5 01 08	10	10		
	iS, L_{1N}?	4 58 25				
	M_{1N}	5 04.6	25		15	
	F	5 42				
Oct. 2	e_N	9 40 15				
	?e_E	9 40 18				
	e_E	9 45 51	6	1		
†Oct. 24	e_N	9 48 25	10		1	†See page 22 for this report.
	F	10 03				
Oct. 30	e_{EN}	3 31.2	10		1	
‡Nov. 4	F	3 49				‡See page 22 for this report.
Nov. 6	?e_E	2 50.2				
	e_N	2 52 56				
	i_E	2 52 25	3	1		
	i_E	2 53 55	8	3		
	e_N	2 54 53	8		1	
	L_{1E}	2 55 37				
	M_{1E}	2 56 36	11	25		
	eL_{1N}	2 55 35				
	M_{1N}	2 56 46	6		19	
	F	3 12				
Nov. 8	e_E	4 25 19				
	?e_N	4 26.0				
	eL_{1E}	4 29.1				
	M_{1E}	4 31.1	20	5		
	eL_{1N}	4 31 44				
	M_{1N}	4 35.1	19		5	
	eL_{2E}	4 36 47				
	M_{2E}	4 40.1	18	10		
	F	5 30				
Nov. 12	e_E	22 14 22				
	iL_{1N}	22 14 27				
	M_{1N}	22 15.0	9		10	
	iL_{1E}	22 14 37				
	M_{1E}	22 15.0	12	14		
	F	22 24				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U.S. Weather Bureau.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Nov. 14	iS_E?	0 31 28	6	9		NS record lost.
	e_E	0 40 20	12	3		
	eL_{1E}	0 44 30				
	M_{1E}	0 50.5	14	13		
	F	1 40				
Nov. 14	iS_E	5 15 51	10	15		NS record lost.
	e_E	5 22 42	30	6		
	eL_{1E}	5 28 57				
	M_{1E}	5 31.0	23	23		
	F	6 25				
Nov. 14	iS_E	7 40 25	10	20		NS record lost.
	eL_{1E}	7 50 40				
	M_{1E}	7 58.7	30	10		
	F	8 42				
Nov. 16	?e_E	21 37 16				NS record lost.
	e_E	21 40 16	20	5		
	eS_E?	21 47 26	16	6		
	e_E	22 00.1	17	5		
	eL_{1E}	22 08 36				
	M_{1E}	22 09.2	33	8		
	F	23 42				
Nov. 19	eS_E	7 03 45	7	1		NS record lost.
	eSR_{1E}	7 06 17	6	1		
	eL_E?	7 10 37	7	3		
	F	7 28				
Nov. 21	e_E	15 31 55				
	i_N	15 32 06	5		3	
	L_{1E}	15 32 19				
	M_{1E}	15 32 39	12	12		
	eL_{1N}	15 32 16				
	M_{1N}	15 32 35	12		10	
	F	15 41.8				
Nov. 21	iS_E	23 35 56	7	10		NS record lost.
	eSR_{1E}	23 41.8	18	5		
	eL_{1E}	23 53.8				
	M_{1E}	23 59.6	35	25		
	F	01.9				
Nov. 25	?e_N	20 09 13	10		2	
	e_E	20 15.7	16	5		
	F	20 21.0				
Nov. 26	i_N	13 13 25	10		6	
	i_E	13 13 28	10	10		
	iS_N?	13 14 27	7		13	
	iS_E?	13 14 29	6	13		
	F	13 57				
Dec. 11	e_N	16 21.8	13		1	
	?e_E	16 31 23				

(continued)

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. University of Chicago.

CHICAGO, Illinois. H. J. Cox, U.S. Weather Bureau.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Dec. 11		(continued)				
	e_E	16 34 25	16	1		
	eL_{1N}	16 31 36				
	eL_{1E}	16 38 35				
	M_{1E}	16 42.4	17	5		
	F	17 08				
Dec. 27	e_N	23 37 47	7		1	
	e_N	23 42 40	7		1	
	e_N	23 48 06	8		3	
	e_E	23 48 25	6	1		
	e_E	23 53 36	7	2		
	F	24 06				
Dec. 28	e_E	9 22 43	19	3		
	e_E	9 29 20	23	4		
	e_N	9 29 30				
	M_{1N}	9 35.0	17		5	
	F	9 58				
Dec. 28	P_E	18 31 23	8	7		Temporary loss of EW record after eSR_{1E} due to stopping of drum.
	P_N	18 31 26	9		9	
	eS_E	18 40.2	14	20		
	iS_N	18 40 20	10		21	
	eSR_{1E}	18 44 52	17	29		
	SR_{1N}	18 44 26	20		25	
	SR_{2N}	18 47 58	16		50	
	M_{1E}	18 5 ?	27	199		
	L_{1N}	18 52 53				
	M_{1N}	19 00.3	19		105	
	F	20.8				
Dec. 31						17^h - time uncertain on EW owing to loss of time marks. Period of maximum - 11^s Amplitude - 4.0 mm. Duration of record - about 34^m NS record lost.
Oct. 24	iP_{EN}	16 06 43				Motion of spot too rapid to record L group.
	i_{EN}	16 17 52				
	iS_{EN}	16 12 11				
	F	18.0				
Nov. 4	iP_E	13 56 43				Motion of spot too rapid to record L group.
	iS_{EN}	14 01 17				
	F	16.1				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. Weather Bureau, Philippine Islands.

GUAM, Marianne Islands. W. W. Rowley, In Charge.

Lat. 13° 28.'3 N. Long. 144° 44.'9 E. h, 5 m.

Instrument	Component	Mass				
Wiechert inverted pendulum	EW	180 kg.				

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Oct. 10	e	11 43 45				EW vibration.
13	e	0 07 35				NS "
13	e	0 57 35				EW "
13	e	1 33 00				EW "
17	e	14 37 45				EW "
26	e	8 39 10				NS "
28	e	9 38 50				EW "
29	e	0 46 00				EW "
Nov. 10	e	7 05 30				EW vibration.
13	e	10 51 45				EW "
13	e	22 30 10				NS "
17	e	7 13 30				EW "
23	e	2 24 30				EW "
23	e	6 10 40				EW "
26	e	12 57 40				NS "
Dec. 2	e	18 10 30				NS vibration.
10	e	2 00 00				NS "
19	e	6 32 50				EW "
19	e	6 42 40				EW "
19	e	6 51 35				NS "
19	e	15 40 30				EW "
21	e	10 09 15				EW "
23	e	2 17 10				NS "
25	e	13 16 05				NS "
26	e	16 21 35				NS "
27	e	5 01 50				NS "
27	e	5 02 45				EW "
28	e	16 53 15				EW "
28	e	18 13 10				NS "

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

HONOLULU (University), Hawaii. J. H. Peters, In Charge.

Lat. 21° 18.2 N. Long. 157° 49.3 W. h, 15 m.

Instrument	Component	Mass	T_o	V	ϵ	Sensitivity
Milne-Shaw	EW	1 lb.	12.0 s.	150	about	23.5 mm.
do	NS	1 lb.	12.0 s.	150	20:1	28.8 mm.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Oct. 2	iS_N	5 07 30	6		10	
	iS_E	5 07 37	4	5		
	F	5 20				
Oct. 8	e_E	12 52.0				
†Oct. 24	e_N	12 55.0				† See page 25 for these reports.
†Nov. 4	F	13 01				
Nov. 9	e_E	1 30.0				
	e_N	1 33.5				
	eL_{1E}?	1 33 50				
	M_{1E}	1 35.0	11	11		
	F	1 44				
Nov. 14	e_N	0 45.0	20		10	Nothing on EW.
	F	0 52				
Nov. 14	e_E	5 31.0				
	e_N	5 30.5	20		10	
	F	5 39				
Nov. 14	e_N	8 04.0	30		10	
	eS_E	7 44 35	10	9		
	eSR_{1E}	7 50 47	10	10		
	eL_{1E}	8 04 30				
	M_{1E}	8 05.0	28	19		
	F	8 25				
Nov. 15	eL_{1E}	8 44 00				
	M_{1E}	8 45 36	10	43		
	eL_{1N}	8 44 25				
	M_{1N}	8 45 20	10		18	
	F	8 57				
Nov. 16	i_N	21 31 20	16		35	EW record lost.
	e_N	21 40.3	30		20	
	F	22 04				
Nov. 18	e_N	8 03 35	10		12	
	e_E	8 03 40	7	15		
	F	8 07				
Nov. 19	e_N	7 14 46	8		15	
	eL_{1E}	7 16 16				
	M_{1E}	7 17.9	9	27		
	L_{1N}	7 17 36 (continued)				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

HONOLULU (University), Hawaii. J. H. Peters, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Nov. 19		(continued)				
	M_{1N}	7 18 00	9		30	
	M_{2N}	7 19.2	7		40	
	F	7 57				
Nov. 21	eS_E	23 38 17	11	2		Record interrupted at 23^h 55^m
	$?e_N$	23 45.0	14		6	by changing of traces.
	eSR_{1E}	23 45.0	20	7		
	e_N	23 54 40	40		20	
	e_E	23 54 40	40	20		
	M_{1N}	24 08.5	17		24	
	M_{1E}	24 12.3	12	13		
	M_{2N}	24 11.7	15		25	
	F	25 07				
Nov. 22	e_E	13 13.0	11	6		
	e_N	13 13.0	10		7	
	F	13 23				
Nov. 26	e_{EN}	13 42 30	20	6	6	
	F	13 46				
Nov. 28	e_N	10 35.0				
	e_E	10 36.0	10	5		
	F	10 42				
Dec. 19	e_E	7 21.5				
	e_N	7 21.9	10		1	
	F	7 26.0				
Dec. 28	iP_N	18 29 00	10		35	
	iP_E	18 30 04	10	30		
	ePR_{1N}	18 30 30	10		45	
	ePR_E	18 30 45	10	28		
	iS_N	18 35 24	17		125	
	iS_E	18 35 40	22	80		
	iSR_{2N}?	18 39 20				
	iL_{1E}?	18 39 20				
	M_{1E}	18 43 00	23	200		
	L_{1N}	18 42 00				
	M_{1N}	18 43 00	25		250	
	F	20.0				
Oct. 24	P_{EN}	16 07 27				
	e_{EN}	16 13 10				
	iS_E	16 13 32				
	iL_E	16 16 21				
	eL_N	16 18.0				
	F	19.0				
Nov. 4	iP_E	13 57 58				
	e_N	14 03 20				
	iS_{EN}	14 03 39				
	L_{EN}	14 05.5				
	F	16.4				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. Cornell University.

ITHACA, New York. P. G. Sheldon, Observer.

Lat. 42° 27.'0 N. Long. 76° 29.'2 W. h, 243 m.

Instrument	Compo-nent	Mass	T_o	V	ϵ	
Bosch-Omori	EW	25 kg.	21 s.?	12	4:1	
do	NS	25 kg.	24 s.?	13	4:1	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Oct. 2	e	4 55 08				
	F	5 14				
Oct. 24	P	16 07 37				
	S	16 13 40				
	e	16 16				
	L_1	16 18	45			
	M_1	16 21	13		440	
	F	19 40				
Nov. 4	S	14 03 31				
	M_1	14 13	14	180		
	F	16 10				
Nov. 6	e	2 58				
	F	3 09				
Nov. 8	L_1	4 34	20			
	F	4 53				
Nov. 12	e	22 18				
	F	22 24				
Nov. 14	L_1	0 44				
	L_2	0 48	22			
	F	1 03				
Nov. 14	L_1	5 28				
	L_2	5 32	24			
	M_2	5 34	20			
	F	5 47				
Nov. 14	P	7 31 04				L faint.
	S	7 40 33				
Nov. 15	L_1	9 00				
	F	9 17				
Nov. 16	L_1	22 14				
	F	22 42				
Nov. 21	e	15 34.5				
	F	15 44				
Nov. 21	eP	23 25 28				
	eS	23 35 39				

(continued)

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. Cornell University.

ITHACA, New York. P. G. Sheldon, Observer.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Nov. 21		(continued)				
	eSR_1	23 42 00				
	L_1	23 53	40			
	F	24 33				
Nov. 26	i	13 05 17				
	iS	13 13 09				L faint.
Dec. 28	P	18 31 53				
	e	18 36 11				
	S	18 41 08				
	SR_1	18 46 07				
	SR_2	18 49 15				
	L_1	18 53	50			
	F	20 20				
Dec. 30	e	12 41.5				
	F	12 50				
Dec. 31	e	19 23				
	e	19 26,5				
	M_1	19 27 38				
	F	19 47				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. Theosophical University.

POINT LOMA, California. C. M. Savage, Observer.

International Seismological Centre

Two-horizontal-component astatic arrangement, on the lines of a suggestion by C.D. West. Also an arrangement for recording vertical movements. V = 1

Date	Phase	Time	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Oct. 1		16 00		100*	300*	
2		do		100*	100*	
3		do		200*	0*	
4		do		100*	100*	
5		do		100*	100*	Oct. 5, 1^h 14^m 40^s to 1^h 15^s
9		do		200*	300*	earthquake of intensity III to
10		do		200*	200*	IV, Rossi-Forel scale.
11		do		100*	100*	
12		do		200*	200*	
13		do		200*	200*	
14		do		100*	100*	
15		do		300*	100*	
17		do		100*	100*	
18		do		200*	100*	
19		do		300*	300*	
23		do		100*	100*	
24		do		300*	0*	
26		do		100*	100*	
28		do		300*	300*	
29		do		100*	100*	
31		do		200*	200*	
Nov. 1		16 00		200*	400*	
2		do		200*	400*	
3		do		400*	400*	
4		do		100*	100*	
6		do		0*	1000*	Nov. 6, light shock, Rossi-
8		do		100*	100*	Forel I - II, 7^h 29^m Pacific
11		do		200*	100*	Time.
12		do		300*	100*	Nov. 12, very light shock
14		do		500*	300*	2:40 p.m., Pacific Time.
15		do		100*	100*	
16		do		200*	200*	
17		do		100*	100*	
19		do		50*	50*	
20		do		50*	50*	
21		do		100*	100*	
22		do		500*	300*	
24		do		400*	100*	Nov. 24, very light shock
25		do		50*	50*	5:43 a.m., Pacific Time.
26		do		200*	200*	
28		do		100*	100*	
29		do		200*	200*	
30		do		400*	200*	

Table II. Instrumental Reports. Theosophical University.

POINT LOMA, California. C. M. Savage, Observer.

Date	Phase	Time	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.			
Dec. 1		16 00		400*	200*	
2		do		200*	200*	
3		do		100*	100*	
7		do		300*	200*	
8		do		100*	100*	
11		do		300*	200*	
14		do		300*	200*	
16		do		400*	400*	
17		do		200*	300*	
19		do		200*	200*	
20		do		300*	300*	
22		do		200*	300*	
23		do		200*	200*	
24		do		100*	100*	
26		do		200*	200*	
28		do		100*	0*	
29		do		100*	0*	
31		do		500*	100*	

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

SAN JUAN, Porto Rico. W. M. Hill, In Charge.

Lat. 18° 23.'4 N. Long. 66° 07.'3 W. h, 80 m.

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Instrument	Compo-nent	Mass	T_o	V		
Bosch-Omori	EW	10 kg.	8 s.	10	Undamped	
do	NS	do	8 s.	10	do	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Oct. 24	P_E	16 15 11	4	2		
	P_N	16 15 17	4		1	
	S_E	16 23 23	6	3		
	L_{1E}	16 31 35				
	M_{1E}	16 38 50	18	40		
	F	17 38				
Nov. 4	$?e_E$	14 02 08				
	e_E	14 08 50	8	1		
	eL_{1N}	14 19 03				
	M_{1N}	14 23.0	20		5	
	eL_{1E}	14 21.7				
	M_{1E}	14 24.0	14	1		
	F	14 41				
Nov. 21	e_E	23 39 09				
	e_E	23 45 05	24	3		
	e_N	23 46 33	11		2	
	F	24 11				
Dec. 30	i_E	12 30 00	6	5		
	iL_N	12 30 23	3		9	
	iL_{1E}	12 30 19				
	M_{1E}	12 30 25	4	25		
	iL_{1N}	12 31 15				
	M_{1N}	12 31 31	10		50	
	F	12 42				

* indicates trace amplitude in one-tenth millimeters.

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

SITKA, Alaska. F. P. Ulrich, In Charge.

Lat. 57° 03.'0 N. Long. 135° 20.'1 W. h, 15 m.

Instrument	Compo-nent	Mass	T_o	V		
Bosch-Omori	EW	10 kg.	18.9 s.	10	Undamped	
do	NS	10 kg.	16.9 s.	10	do	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Oct. 24	iP_E	16 00 08				Felt (VII). Both components off paper shortly after first impulse. First ground movement about S 27° E. Recorded on the magnetograph. Z magnet tipped over.
	iP_N	16 00 08	3			
	F	18 41				
Oct. 25	iP_E	17 59 38				
	iP_N	17 59 38				
	iL_{1E}	17 59 52	1	10		
	iL_{1N}	17 59 52				
	F	18 06				
Oct. 28	iP_E	4 42 28				Nothing on NS. Reported felt locally but there is some doubt of its seismic origin because of failure to record well.
	F	4 45 51				
Oct. 31	i_E	3 22 54				Local shock of intensity III; recorded on the "D" and "H" magnetic variometers from 3:23 to 3:25.
	i_N	3 22 55				
	iL	3 23 00				
	M_{1E}	3 23 02	1	7		
	iL_{1N}	3 23 01				
	M_{1N}	3 23 02	1		11	
	F	3 26.5				
Nov. 4	P_E	13 56 24	4	1		
	P_N	13 56 28	10		4	
	iS_E	14 00 50	7	2		
	iL_N	14 01 24	12		50	
	L_E	14 05 33				
	L_N	14 05 13	13		6	
	L_{1E}	14 07 57				
	M_{1E}	14 11.5	11	8		
	L_{1N}	14 07 27				
	M_{1N}	14 08.0	13		20	
	F	14 59				
Nov. 12	iP_N	21 56 36				Felt (III). Recorded on the variometers.
	iP_E	21 56 36				
	i_E	21 56 40				
	i_N	21 56 39				
	iL_{1E}	21 56 50				
	M_{1E}	21 56 50	3	35		
	iL_{1N}	21 56 46				
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

SITKA, Alaska. F. P. Ulrich, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Nov. 12		(continued)				
	M_{1N}	21 56 48	3		25	
	F	22 02.5				
Nov. 14	e_N	0 34.2	12		1	Nothing on EW.
	F	0 52				
Nov. 14	e_N	5 20.0	13		1	
	e_E	5 21.4				
	F	5 41				
Nov. 21	i_N	15 14 13	1		6	Felt, intensity III. Recorded on magnetograph.
	i_E	15 14 14				
	i_N	15 14 17				
	iL_{1E}	15 14 28				
	M_{1E}	15 14 30	3	47		
	iL_{1N}	15 14 27				
	M_{1N}	15 14 30	2		30	
	F	15 20.0				
Dec. 28	e_E	18 27 40	4	1		
	$?e_N$	18 28.8				
	e_N	18 32 53	10		1	
	iS_N	18 35 44	20		14	
	e_E	18 37 40				
	eL_{1N}	18 39 27				
	M_{1N}	18 43 37	17		25	
	F	19 37				
Dec. 31	iP_N	19 07 10	1		15	Times approximate owing to failure of time markers.
	iP_E	19 07 44	1	12		
	i_E	19 07 48				Felt, intensity III. Recorded on magnetograph.
	iL_{1E}	19 07 55				
	M_{1E}	19 08 04	13	150		
	eL_{1N}	19 07 23				
	M_{1N}	19 07 34	14		109	
	F	19 19				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Lat. 32° 14.'8 N. Long. 110° 50.'1 W. h, 770 m.

Instrument	Compo-nent	Mass	T_o	V_o	ϵ	
Wood-Anderson	EW	2.3 gms.	5.3 s.	435	About 30:1	
do	NS	2.3 gms.	5.3 s.	435	30:1	

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Oct. 1	e_N	20 48 10	2		1	Local.
	e_E	20 48 18	2	1		
	e_N	20 48 24	6		1	
	e_E	20 48 44	4	2		
	F	20 50.8				
Oct. 2	eP_E	4 53 58	3	1		
	eP_N	4 54 02	1		1	
	ePR_{1N}	4 54 25	5		4	
	ePR_{1E}	4 54 28	6	5		
	eS_N	4 58 38	5		12	
	eS_E	4 58 38	6	7		
	eL_{1E}	5 03 08				
	M_{1E}	5 03 22	5	20		
	eL_{1N}?	5 02 55				
	M_{1N}	5 03 28	4		14	
	F	5 25				
Oct. 2	e_N	9 43 48	3		5	Record lost on EW.
	eL_{1N}	9 45 29				
	M_{1N}	9 46.9	9		5	
	F	9 53				
Oct. 4	e_N	0 04 31	5		5	
	e_E	0 04 33	3	5		
	F	0 10.5				
Oct. 5	e_N	21 14 36	1		1	Local.
	i_E	21 14 40	2	6		
	i_N	21 14 44	2		6	
	e_E	21 15 12	4	15		
	e_N	21 15 12	2		11	
	L_{1E}	21 15 29				
	M_{1E}	21 16 00	2	82		
	L_{1N}	21 15 30				
	M_{1N}	21 15 49	4		67	
	F	21 26				
Oct. 5	?e_N	21 57 42				Local.
	e_E	21 57 50	2	2		
	e_N	21 57 51	2		3	
	F	21 59.4				
Oct. 5	e_E	22 28 58	2	9		Local.
	e_N	22 29 01	2		5	
	eL_{1E}	22 30 13				

(continued)

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Lindy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Oct. 5		(continued)				
	M_{1E}	22 30 36	6	10		
	eL_{1N}	22 29 24				
	M_{1N}	22 29 56	6		7	
	F	22 34				
Oct. 6	e_E	21 08 14	4	5		Local.
	e_N	21 08 19	2		5	
	F	21 11.0				
Oct. 6	e_N	21 14 55	2		1	Local.
	e_E	21 15 51	5	5		
	eL_{1E}	21 15 37				
	M_{1E}	21 16 03	5	5		
	eL_{1N}	21 15 33	3		5	
	F	21 19.3				
Oct. 6	e_N	21 20 03	2		3	This may be a record of two shocks close together.
	$?e_E$	21 20 25				Local.
	L_{1E}	21 20 47				
	M_{1E}	21 21 16	4	40		
	iL_{1N}	21 20 49				
	M_{1N}	21 21 03	2		30	
	L_{2E}	21 23 03				
	M_{2E}	21 23 49	5	46		
	iL_{2N}	21 23 09				
	M_{2N}	21 23 43	4		37	
	F	21 39				
Oct. 6	e_E	22 27 00	3	2		Local.
	e_N	22 27 06	3		4	
	e_E	22 27 25	4	9		
	e_N	22 27 44	5		6	
						Further record lost.
Oct. 8	$eP_N?$	8 15 41	4		5	Local.
	$eP_E?$	8 15 47	4	1		
	$i_N?$	8 16 13	4		8	
	$eS_E?$	8 16 47	4	6		
	e_N	8 16 57				
	$eL_{1E}?$	8 17 23				
	M_{1E}	8 17 37	8	8		
	$eL_{1N}?$	8 17 37				
	M_{1N}	8 17 55	6		15	
	F	8 26				
Oct. 16	$?e_N$	16 03 54	4		1	Record lost on EW. Local.
	L_{1N}	16 10 06				
	M_{1N}	16 10 40	6		30	
	F	16 26				
Oct. 24	P_N	16 06 13				
	PR_{1N}	16 07 13				
	S_N	16 11 27				
	L_{1N}	16 15 31	24		540	
	F	16 50				

* indicates trace amplitude in one-tenth millimeters.

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Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Nov. 4	iP_N	13 53 08	8		50	Vibration was too rapid to record beginning of L waves. Local.
	iP_E	13 53 09	8	100		
	iS_E	13 54 56	8?	840?		
	iS_N	13 54 57	6?		1150?	
	M_{1E}	13 57 27	?	1200		
	M_{1N}	13 58 50	?		1500?	
	F	16.0				
Nov. 4	e_N	17 53 54	3		5	Local. Aftershock? Some of the weaker aftershocks on Nov. 4, 5, and 6 are not listed.
	e_E	17 53 54	4	4		
	F	17 57.0				
Nov. 4	e_E	18 52 04	3	5		
	e_N	18 52 18	4		6	Local. Aftershock?
	F	18 55.3				
Nov. 4	eP_N	20 05 06	3		5	Local. Aftershock?
	e_E	20 05 12				
	L_{1E}	20 05 26				
	M_{1E}	20 06.1	4	19		
	L_{1N}	20 05 42				
	M_{1N}	20 06.0	5		23	
	F	20 14				
Nov. 4	eP_N?	20 48 49	3		1	Local. Aftershock?
	e_E	20 48 52				
	eL_{1E}?	20 49 00				
	M_{1E}	20 49 45	3	4		
	L_{1N}	20 49 04				
	M_{1N}	20 49 12	3		5	
	F	20 51.7				
Nov. 5	e_E	3 28 20	3	4		Local. Aftershock?
	e_N	3 28 22	3		4	
	F	3 31				
Nov. 5	e_N	3 33 21	3		3	Nothing on EW. Local. Aftershock?
	F	3 34.3				
Nov. 5	e_E	3 43 10				Local. Aftershock?
	e_N	3 43 19				
	L_{1E}	3 43 36				
	M_{1E}	3 43 56	4	5		
	M_{1N}	3 43 58	4		11	
	F	3 48				
Nov. 5	$?e_E$	3 55 44				Local. Aftershock?
	e_E	3 56 22				
	e_N	3 56 23	2		5	
	L_{1E}	3 56 36				
	M_{1E}	3 56 58	3	10		
	L_{1N}	3 56 38				
	M_{1N}	3 56 58	4		9	
	F	4 02				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Nov. 5	?e_N	9 05 36				Local. Aftershock?
	L_{1E}	9 05 53				
	M_{1E}	9 06 25	4	6		
	iL_{1N}	9 05 55				
	M_{1N}	9 06 29	4		13	
	F	9 12				
Nov. 6	?e_E	2 41 56				Local.
	e_E	2 42 04	4	5		
	e_N	2 42 16	3		3	
	e_E	2 42 56	3	5		
	e_N	2 43 34	4		15	
	L_{1E}	2 43 50				
	M_{1E}	2 45 04	3	125		
	iL_{1N}	2 44 18				
	M_{1N}	2 45 50	5		125	
	M_{2E}	2 46 49	5	120		
	F	3 08				
Nov. 6	e_E	10 25 52	4	5		Local. Aftershock?
	e_N	10 26 10	4		5	
	F	10 30				
Nov. 6	e_E	11 17 58	4	1		Local. Aftershock?
	e_N	11 17 58	4		4	
	F	11 20				
Nov. 8	e_E	3 30 52	3	1		
	e_N	3 31 07	4		1	
	e_E	3 36 05	3	3		
	e_N	3 36 13	4		5	
	e_E	3 42 41	6	5		
	e_N	3 43 47	6		5	
	F	3 54				
Nov. 8	e_E	4 39.0				
	e_N	4 46 30	20		5	
	F	5 12				
Nov. 8	e_N	10 25 47	3		5	Local.
	e_E	10 25 59	4	3		
	F	10 30.0				
Nov. 10	e_E	16 51 28	4	6		Local. Aftershock?
	e_N	16 51 46	4		10	
	F	16 57.0				
Nov. 14	e_N	0 23 04	2		1	
	e_E	0 23 34	2	1		
	?e_N	0 40.4				
	e_N	0 51 54	18		1	
	e_E	0 52 12	16	8		
	e_N	0 57.4	16		10	
	F	1 13				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Nov. 14	e_E	5 07 44				
	$?e_N$	5 07 46				
	e_N	5 22.4				
	e_E	5 30.4	17	8		
	e_N	5 35.6				
	e_N	5 42 08				
	F	5 55				
Nov. 14	iP_N	7 30 58	5		12	
	iP_E	7 30 59	3	10		
	e_N	7 32 27	3		7	
	$?e_E$	7 33 13				
	$ePR_{1N}?$	7 33 45	4		8	
	iS_N	7 40 25	10		22	
	iS_E	7 40 26	6	20		
	eSR_{1N}	7 45 08	7		6	
	$eL_{1E}?$	7 48.7				
	$eL_{1N}?$	7 48.0				
	eL_{2E}	7 56 45				
	M_{2E}	7 58.9	17	6		
	M_{1N}	7 51.0	16		5	
	eL_{2N}	7 57.8				
	M_{2N}	7 58.4	20		8	
	F	8 19				
Nov. 15	iP_N	8 38 42	3		7	Record lost on EW component.
	e_N	8 41 16	5		5	
	iS_N	8 46 06	5		16	
	e_N	8 49 32	5		7	
	eL_{1N}	8 52.3				
	M_{1N}	8 53.7	16		5	
	F	9 13				
Nov. 16	e_E	8 08 57	2	1		Local.
	e_N	8 09 00	1		1	
	F	8 09 52				
Nov. 16	e_E	15 47 24	4	10		Local.
	e_N	15 47 24	3		5	
	F	15 50.0				
Nov. 16	$?e_N$	21 31 07	4		3	
	e_N	21 36 30	6		3	
	e_E	21 39 13	6	5		
	e_N	21 39 17	5		5	
	e_N	21 49 22	24?		5	
	e_N	21 56 59	40?		6	
	$eL_E?$	22 02 20	30	5		
	$eL_E?$	22 09 11	20	5		
	F	22 54				
Nov. 18	e_E	7 46 58	5	1		
	e_N	7 47 00	7		3	
	e_E	7 48 18	8	4		
	e_N	7 49 19	6		4	
	e_N	7 51 40	5		5	
	F	8 00				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	G. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Nov. 19	e_E	3 36 02				Local.
	e_N	3 36 21	3		2	
	e_E	3 36 51	5	5		
	e_N	3 36 58	3		5	
	iL_{1E}	3 37 12				
	M_{1E}	3 37 33	4	22		
	L_{1N}	3 37 12				
	M_{1N}	3 37 33	10		20	
	F	3 50				
Nov. 19	iP_N	6 56 20	3		5	
	eP_E	6 56 23	2	5		
	eS_N	7 00 29	5		5	
	eS_E	7 00 45	6	10		
	eL_{1E}	7 02.3				
	M_{1E}	7 03 35	10	10		
	eL_{1N}?	7 04 12				
	M_{1N}	7 04 22	9		10	
	M_{2N}	7 09 05	6		20	
	F	7 36				
Nov. 21	e_N	15 30 48	3		1	
	e_E	15 30 50	4	1		
	F	15 39				
Nov. 21	eP_E	18 59 54	4	2		
	eP_N	18 59 55	4		2	
	eL_{1E}	19 17.0	20	5		
	eL_{1N}	19 17.0	22		5	
	F	19 25				
Nov. 21	eP_E	23 24 57	2	5		
	eP_N	23 25 06	5		9	
	?ePR_{1E}	23 27 32	4	5		
	ePR_{1N}	23 27 34	4		5	
	eS_N?	23 35 18	5		15	
	S_E	23 35 20	10	13		
	eSR_{1N}	23 40 55				
	eL_{1E}	23 49.5				
	M_{1E}	23 56.3	21	13		
	eL_{1N}	23 52 58				
	M_{1N}	23 56.6	17		21	
	F	1 33				
Nov. 25	eP_N?	20 00 23	2		1	
	e_E	20 03 50	4	7		
	e_N	20 16 14	4		5	
	eL_E?	20 07 04				
	M_{1E}	20 10 04	5	11		
	eL_{1N}	20 10 00				
	M_{1N}	20 11 16	6		11	
	F	20 25				
Nov. 26	eP_E	13 03 55	4	5		
	eP_N	13 04 55	5		10	
	eS_E	13 13 54	6	19		
		(continued)				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table II. Instrumental Reports. C. and G. Survey Magnetic Observatory.

TUCSON, Arizona. A. K. Ludy, In Charge.

Date and character	Phase	C. M. T.	Period	Amplitude E	Amplitude N	Remarks
1927		h. m. s.	s.	*	*	
Nov. 26		(continued)				
	eS_N	13 13 57	5		20	
	F	13 23				
Nov. 27	e_{EN}	5 33 27	1		1	Local.
	F	5 35 35				
Dec. 8	e_N	6 49 10	2		4	Nothing on EW. Local.
	F	6 50.9				
Dec. 8	e_N	7 13 07	2		4	Nothing on EW. Local.
	L_{1N}	7 13 53	3		5	
	F	7 16.0				
Dec. 24	e_N	4 33 40	2		1	EW record lost.
	eL_{1N}	4 39 51				
	M_{1N}	4 40 16	5		34	
	M_{2N}	4 42 11	8		35	
	F	4 56				
Dec. 27	eP_E	23 36 32	4	2		
	$?eP_N$	23 36 33	4		5	
	e_N	23 37 10				
	L_{1E}	23 42 21				
	M_{1E}	23 42 38	4	25		
	L_{1N}	23 42 13				
	M_{1N}	23 42 39	5		35	
	F	23 56				
Dec. 28	eP_N	18 30 57	4		12	
	eP_E	18 31 02	4	14		
	S_N	18 39 39	10		35	
	S_E	18 39 42	12	20		
	$eSR_{1N}?$	18 42 20	19		30	
	eSR_E	18 43 50	16	25		
	L_{1E}	18 46 44				
	M_{1E}	18 55.0	25	20		
	L_{1N}	18 46.3				
	M_{1N}	18 49 38	22		40	
	F	20 29				
Dec. 31	eP_N	19 13 22	4		2	
	e_E	19 22 18				
	L_{1N}	19 23 24				
	M_{1N}	19 27.0	10		10	
	L_{1E}	19 23 39				
	M_{1E}	19 24.9				
	F	19 37				

* indicates trace amplitude in one-tenth millimeters.

International Seismological Centre

Table IIa. Microseisms.	C. and G. Survey Magnetic Observatory.
HONOLULU, Hawaii.	J. H. Peters, In Charge.

Days of subnormal activity: Max. A_{EN} about 6 μ.	Oct. 1-16, 20-23, 25-27, 29-31 Nov. 1; 2, 9-11, 19-23 Dec. 20-23
Days of normal activity: Max. A_{EN} about 12 μ.	Oct. 17-19, 24, 28 Nov. 3-8, 12-18, 24-30 Dec. 2-19, 24, 25, 29-31
Days of abnormal activity: Max. A_{EN} about 18 μ.	Dec. 1, 26-28

Table IIa. Microseisms.	Theosophical University.
POINT LOMA, California.	C. M. Savage, Observer.

See Table II for microseismic activity recorded at this station.

International Seismological Centre

Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from October 1, 1927 to December 31, 1927.

International Seismological Centre

List of Seismological Observatories and Station Symbols.

*BER	Berkeley, Calif.	*LICK	Lick Obs'y., Calif.
CAM	Cambridge, Mass.	**MAN	Manila, P. I.
CHE	Cheltenham, Md.	*MOB	Mobile, Ala.
CHI	Chicago, Ill. (Univ. of Chicago)	*NOR	New Orleans, La.
		*NYF	New York (Fordham), N.Y.
CHIL	Chicago, Ill. (Loyola College)	*OTT	Ottawa, Canada.
CIN	Cincinnati, Ohio	*SAS	Saskatoon, Canada.
*CLA	Santa Clara, Calif.	SIT	Sitka, Alaska.
CZB	Canal Zone, Balboa Heights	SJU	San Juan, P. R.
*DEN	Denver, Colo.	*SPO	Spokane, Wash.
*GEO	Georgetown, D. C.	*STA	Ste. Anne de la Pocatiere, Canada.
GUAM	Guam, M. I.		
*HAL	Halifax, Canada.	*STL	St. Louis, Mo.
HON	Honolulu, T. H. (Ewa).	*TOR	Toronto, Canada.
**HVO	Hawaiian Volcano Obs'y.	TUC	Tucson, Ariz.
ITH	Ithaca, N. Y.	*VIC	Victoria, B. C.
LOM	Point Loma, Calif.		

* Instrumental registers are not published in this report.

** Only teleseismic reports are noted in this table. See introductory remarks.

NOTE

See introductory remarks concerning tabulation of provisional origins. Observatories listed in this table are limited to those submitting monthly reports to the Coast and Geodetic Survey in time for routine publication. Although foreign reports are also utilized, reference to them is not made because of the limited purpose which this report serves. When origins are determined by other institutions such as the Central Seismological Bureau at Strasbourg, the source of information is stated.

An asterisk (*) after the tabulated time indicates instrumental time of origin. Otherwise the tabulated time refers to the approximate time the earthquake was felt, or the time at which the initial phase was recorded at the first observatory named, if not felt.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927			
Oct. 1	0 10	-----	VIC OTT TOR.
1	20 48	-----	TUC. Local.
1	23 27	-----	OTT.
1	20 48	-----	TUC.
2	0 13	Hawaiian Is.	HON. Local.
2	4 02	Hawaiian Is.	HON. Local.
2	4 47.8*	Pacific O., N.E., 12° N., 89° W.	VIC OTT TUC HON TOR CHI ITH.
2	9 41	-----	OTT TUC VIC TOR CHI.
2	16 03	-----	SAS.
4	0 04	-----	TUC OTT VIC TOR.
5	8 43	-----	OTT.
5	21 14	Calif., Imperial Valley	Felt (V). TUC OTT VIC BER LICK TOR LOM.

Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from October 1, 1927 to December 31, 1927.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927			
Oct. 5	21 44	Hawaiian Is.	HON. Local.
5	21 57	-----	TUC. Local.
5	22 28	-----	TUC. Local.
6	21 08	-----	TUC. Local. VIC OTT.
6	21 14	-----	TUC. Local.
6	21 20	-----	TUC. Local. VIC OTT TOR.
6	22 27	-----	TUC. Local.
8	3 58	-----	HON.
8	8 15	-----	TUC. Local.
8	11 22	-----	OTT.
8	13 15	-----	OTT TOR HON.
8	14 00	Tenn., near Chattanooga.	Felt.
8	19 13	Calif., Los Angeles region.	Felt.
9	3 52	-----	CZB.
10	11 43	-----	GUAM.
11	0 16	-----	OTT TOR.
11	17 30.4*	Japan, 45.1° N., 143.3° E.	OTT MAN TOR. Irkutsk epicenter.
12	7 23	-----	OTT MAN.
12	8 55	-----	OTT.
13	0 07	-----	GUAM. Three disturbances.
14	7 10	Nebr., Ord	Felt.
15	12 06	-----	OTT.
16	13 37	-----	OTT.
16	15 03	-----	LICK. Local. OTT TUC?
17	14 37	-----	GUAM.
19	10 00	Porto Rico, Mayaguez	Felt.
19	14 57	-----	OTT.
19	23 22	-----	OTT.
21	1 15	-----	OTT.
24	11 00	New York, Dannemora	Felt.
24	14 00	Mont., Helena	Felt. Seismic?
24	15 59.7*	Alaska, S.E., Cross Sound, 58.3° N., 136.5° W.	Felt (VIII). SIT VIC SAS HER LICK TUC CHI OTT HON CHE CZB STL TOR NYF DEN CHIL HVO ITH.
25	4 10	-----	TUC.
25	17 59	Alaska, S.E.	Felt (II). SIT VIC OTT.
25	18 23	United States, Mississippi Valley	STL. Local. TOR.
26	8 39	Guam	Felt (III). GUAM.
27	"early"	N. C., Elizabeth City	Felt (IV).
27	8 15	-----	VIC OTT STL TOR.
28	4 42	-----	SIT. Seismic origin questioned.
28	9 38	-----	GUAM.
28	15 23.0*	Pacific O., N. W., 26.8° N., 131.4° E.	OTT TOR. Sverdlovsk epicenter.
29	0 46	-----	GUAM.
30	3 23	-----	OTT TOR CHI.
31	3 23	Alaska, S.E.	Felt (II). SIT VIC.
31	18 43	-----	OTT.
Nov. 1	13 24	-----	VIC.
3	18 26	-----	NYF.

International Seismological Centre

Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from October 1, 1927 to December 31, 1927.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927 Nov. 4	13 51.0*	Calif., near Point Conception, 34.5° N., 120.7° W.	Felt (IX). LICK BER TUC TOR VIC SAS SIT STL CHI GEO HON NYF DEN CIN CHIL HVO ITH. See article by P. Byerly in BSSA for December, 1927.
4	17 53	-----	TUC. Local. Aftershock?
4	18 49	-----	BER LICK TUC. Local. Aftershock?
4	20 04	-----	LICK TUC BER VIC. Local. Aftershock?
4	20 45	-----	BER LICK TUC. Local. Aftershock?
5	3 28	-----	BER LICK TUC. Local. Aftershock?
5	3 33	-----	TUC. Local. Aftershock?
5	3 43	-----	TUC. Local. Aftershock?
5	3 53	-----	BER LICK TUC. Local. Aftershock?
5	5 15	Md., Baltimore	Felt. Seismic origin questioned.
5	9 02	-----	BER. Local. LICK TUC. Aftershock?
5	12 11	-----	VIC.
6	0 06	Calif., Buellton	Felt (IV).
6	2 39.7*	Calif., near Point Conception, 34.5° N., 120.7° W.	Felt. TUC OTT ITH DEN CIN CHIL CHI VIC BER STL TOR NYF LOM.
6	6 34	-----	TUC CZB MAN.
6	10 25	-----	TUC. Local. Aftershock?
6	11 16	-----	TUC. Local. Aftershock?
6	15 58	-----	VIC OTT TOR.
6	18	-----	LICK. Local.
6	22 10	Calif., San Diego	Felt. TUC LOM. Additional shock at 23:10?
6	22 50	Calif., Buellton	Felt (IV).
7	0 04.3*	New Zealand, White Is. 37° S., 177° E.	Felt (VI). VIC OTT. Epicenter suggested by Wellington.
7	1 10	-----	LICK. Local.
7	3 28	Calif., San Diego	Felt (IV). LOM.
7	17 21	-----	VIC.
8	3 10.4*	Indian O., probably S.E. of Madagascar, 33° S.?, 57° E.?	TUC OTT VIC ITH BER STL CIN CHI TOR.
8	4 39	-----	TUC.
8	7 25	Calif., San Diego	Felt (IV).
8	10 02	Calif., Buellton	Felt (IV). TUC.
9	2 03	-----	TOR VIC OTT HON.
9	10 55	Calif., San Diego	Felt (III).
10	0 45	South Carolina, Beaufort	Felt (IV). Seismic?
10	3 47	-----	VIC OTT TOR.
10	7 05	Guam	Felt (II). GUAM.
10	16 47	-----	LICK TUC BER. Local. Aftershock?
12	?	Canada, Niagara Falls	Felt (IV).
12	0 54	-----	BER. Local. OTT.
12	12 55	-----	OTT CIN.
12	14 47.4*	Persia, 34.1° N., 45.6° E.	OTT. Tachkent epicenter.

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Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from October 1, 1927 to December 31, 1927.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927			
Nov. 12	21 56	Alaska, S.E.	Felt (V). SIT TOR VIC OTT STL CHI ITH LOM.
12	23 21	-----	OTT. Local. NYF.
13	10 51	-----	GUAM.
13	15 17	-----	TUC.
13	16 20	Miss., Jackson	Felt (III).
13	22 30	Guam	Felt (II). GUAM.
14	0 08.5*	Siberia, 69.6° N., 124.0° E.	OTT VIC TUC MAN. Irkutsk epicenter. STL TOR NYF CIN CHIL HON CHI ITH SIT.
14	4 53.0*	Siberia, 70.9° N., 125.0° E.	VIC OTT TUC HON MAN STL CHI TOR NYF CIN CHIL ITH SIT. Irkutsk epicenter.
14	7 19.3*	Chile, 30.8° S., 71.4° W.	Felt. VIC OTT TUC HON CHIL CZB CIN CHI BER MAN STL TOR ITH. La Paz epicenter.
14	15 41	-----	OTT TOR.
15	8 28.9*	Bering Sea, 57.9° N., 169.8° W.	VIC OTT TUC HON BER STL NYF CIN HVO ITH. Irkutsk epicenter.
15	21 49.0*	Siberia, 69.6° N., 123.0° E.	VIC OTT TOR. Irkutsk epicenter.
16	8 09	-----	TUC. Local.
16	15 47	-----	TUC. Local.
16	21 08.1*	East Indies, near Moluccas	Felt in S.E. Mindanao. VIC OTT TUC HON CZB BER ITH CHI CIN TOR STL. Manila epicenter.
17	7 13	-----	GUAM.
17	14 50	-----	OTT.
17	15 29	-----	OTT STL TOR.
17	20 54.8*	Chile, 23.8° S., 67.5° W.	OTT TOR. La Paz epicenter.
18	3 25.5*	Philippine Is., 10° N., 127° E.	Felt in P. I. MAN OTT VIC TOR. Manila epicenter.
18	7 42	-----	TUC OTT VIC HON TOR.
19	3 32.5*	Calif., near Point Conception	TUC OTT VIC BER TOR. Felt(VI).
19	6 50.7*	Pacific O., N.E., 7° N., 105° W.	VIC OTT TUC HON TOR HVO CHI.
19	8 21	-----	OTT TOR.
19	10 10	Alaska, Cordova	Felt.
19	22 25	-----	CZB.
20	0 54	-----	CZB.
21	15 15	Alaska, S.E.	Felt (V). SIT VIC TUC CHI ITH OTT HON TOR NYF CIN.
21	18 50.8*	Pacific O., S.E., 16.2° S., 85° W.	TUC OTT VIC CZB STL TOR. La Paz epicenter.
21	23 12.5*	Chile, 44.6° S., 74° W.	TUC OTT VIC MAN CZB BER STL ITH CHI HON CHIL CIN TOR NYF. La Paz epicenter.
22	12 52.9*	Kamchatka, 54.1° N., 159.0° E.	HON. Tachkent epicenter.
22	23 50	North Carolina, Southport	Felt (III).
23	2 24	-----	GUAM.
23	2 45	Utah, Orderville	Felt (II).
23	6 10	-----	GUAM.

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Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from October 1, 1927 to December 31, 1927.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927			
Nov. 23	9 30	Utah, Orderville	Felt.
23	9 36	Alaska, Fairbanks	Felt.
24	2 56	-----	NYF. Local.
25	6 00	-----	NYF.
25	11 40	Alaska, Fairbanks	Felt. NYF.
25	15 08	-----	STL.
25	17 50	-----	STL.
25	20 00	-----	TUC OTT CHI VIC STL TOR DEN.
26	12 53.9*	Chile, 23.6° S., 68° W.	TUC OTT VIC MAN STL TOR CIN GUAM HON CHI ITH. La Paz epicenter.
27	5 33	-----	TUC. Local.
27	6 42	-----	OTT TOR.
28	10 38	-----	VIC OTT STL TOR HON.
28	21 58	United States, Mississippi Valley	STL. Local.
30	16 43	-----	CZB.
Dec. 1	4 37.4*	Central Celebes, 2° S., 121° E.	Destructive. OTT VIC STL TOR. Batavia epicenter. Coordinates estimated by editor.
2	4 33.1*	Calif., Concord	Felt (VI). BER.
2	18 10	-----	GUAM.
5	11 55	Calif., Buellton	Felt (IV).
5		Panama, Balboa Heights	Felt.
8	22 25	Calif., Scotia	Felt (V). Lighter shock 0:14.
8	4 20	-----	CZB. Local.
8	6 49	-----	TUC. Local.
8	7 13	-----	TUC. Local.
9	6 14	Calif., Eureka	Felt (V).
9	?	Alaska, Seward	Felt (VI).
10	2 00	-----	GUAM.
10	22 00	-----	STL.
11	5 00	Calif., Los Angeles	Felt (II).
11	15 56	-----	VIC OTT STL TOR NYF CHI.
11	17 25.5*	Celebes Is., 1.7° S., 121.4° E.	OTT VIC STL TOR. Irkutsk epicenter.
11	20 57	Panama	Felt (V-VI). CZB.
12	7 24	-----	STL.
12	14 20	-----	TOR.
12	18 54	-----	TOR NYF.
12	19 44	-----	OTT TOR.
15	0 01	-----	CZB.
15	4 30	Louisiana, Burrwood	Felt (IV).
15	?	Calif., Los Angeles	Felt.
15	16 17	-----	MAN VIC.
18	3 58	-----	STL. Two records.
19	6 32	Guam	Felt (III). GUAM. Four other shocks.
19	7 21	-----	HON.
20	3 35	-----	BER.
21	10 09	-----	GUAM.
23	2 17	Guam	Felt (III). GUAM.
24	0 43	Calif., Yorba Linda	Felt (III). LOM.
24	4 41	-----	OTT TOR VIC STL TUC.
25	13 16	-----	GUAM.
26	16 21	-----	GUAM.

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Table III. Summary of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions, from October 1, 1927 to December 31, 1927.

Date	G. M. T.	Provisional Origin	Remarks. Stations reporting record of earthquakes.
1927			
Dec. 27	5 01	-----	GUAM. Two records.
27	20 36	-----	STL CIN.
27	23 44	-----	OTT TOR VIC STL CHI TUC.
28	9 10	-----	OTT TOR VIC STL MAN CHI GUAM.
28	18 20.1*	Pacific O., 55° N., 163° E.	VIC OTT TUC HON MAN BER LICK ITH SIT GUAM STL DEN HVO TOR NYF CIN CHI.
29	0 12	Calif., Grass Valley	Felt (III).
29	0 55	-----	HON.
29	13 00	-----	VIC.
30	12 39	-----	OTT TOR STL NYF ITH.
30	23 37	-----	STL.
31	10 10	Calif., Pt. Arguello	Felt.
31	17 00	Calif., Santa Monica	Felt.
31	19 07	Alaska, S.E.	Felt (III). SIT VIC TUC OTT BER TOR NYF CIN DEN ITH.
31	23 57	-----	STL OTT TOR.

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Table IIIa - Distribution of Earthquakes
Oct. 1, 1927 to Dec. 31, 1927

International Seismological Centre

Regions and Dates An underscore (_) indicates a heavy shock. An interrogation mark (?) indicates doubtful classification.	Number of Earthquakes located: provisionally	Number of Earthquakes located: with uncertainty
Alaska: Oct. 24, 25, 31; Nov. 12, 15, 19, 21, 23, 25; Dec. 9, 31	11	
Canada: Nov. 12	1	
Hawaii: Oct. 2, 2, 5	3	
United States:		
Arkansas: May 7	1	
California: Oct. 5, 8; Nov. 4, 6, 6, 6, 6, 7, 8, 8, 9, 19; Dec. 2, 5, 8, 9, 11, 15, 24, 29, 31, 31	22	
Louisiana: Dec. 15	1	
Maryland: Nov. 5	1	
Mississippi: Nov. 13	1	
Montana: Oct. 24	1	
Nebraska: Oct. 14	1	
New York: Oct. 24	1	
North Carolina: Oct. 27, 22	2	
South Carolina: Nov. 10	1	
Tennessee: Oct. 8	1	
Utah: Nov. 23, 23	2	
West Indies: Oct. 19 (P.R.)	1	
South America: Nov. 14, 17, 21, 26	4	
Central America: Dec. 11	1	
Asia: Oct. 11 (Japan); Nov. 12, 14, 14, 15, 22	6	
Pacific Ocean:		
N.E. of lat. 0°, long. 180°: Oct. 2; Nov. 19	2	
S.E. of lat. 0°, long. 180°: Nov. 21	1	
S.W. of lat. 0°, long. 180°: Nov. 7; Dec. 1, 11	3	
N.W. of lat. 0°, long. 180°: Oct. 26 (Guam), 28; Nov. 10 (Guam), 13 (Guam), 16, 18 (P.I.); Dec. 19 (Guam), 23 (Guam), 28	9	
Indian Ocean: Nov. 8	1	
Locations unknown: Oct. 1, 1, 1, 1, 2, 2, 4, 5, 5, 5, 6, 6, 6, 6, 8, 8, 8, 8, 9, 10, 11, 12, 12, 13, 15, 16, 16, 17, 19, 19, 21, 25, 27, 28, 28, 29, 30, 31; Nov. 1, 3, 4, 4, 4, 4, 5, 5, 5, 5, 5 (9 aftershocks), 5, 6, 6, 6, 6, 6, 7, 8, 9, 10, 10, 12, 12, 12, 13, 13, 14, 16, 16, 17, 17, 17, 18, 19, 19, 19, 23, 24, 25, 25, 25, 25, 27, 27, 28, 28, 30; Dec. 2, 8, 8, 8, 8, 10, 10, 11, 12, 12, 12, 12, 15, 15, 18, 19, 20, 21, 24, 25, 26, 27, 27, 27, 28, 28, 29, 29, 30, 30, 31		(117)
	78	117

General Summary of Earthquakes.

Locations well or approximately known	78
Locations unknown	117
Total number of earthquakes recorded	195

Table IIIb. Earthquakes whose epicenters have been determined instrumentally or reported by other seismographic stations. An asterisk (*) indicates that a provisional location has been published through SCIENCE SERVICE, Washington.

Date	Time of Origin G. M. T.	Epicenter	
		Latitude	Longitude
1927	h. m.	°	°
October 2	4 47.8	12 N	89 W
11	17 30.4	45.1 N	143.3 E
24*	15 59.7	58.3 N	136.5 W
28	15 23.0	26.8 N	131.4 E
November 4*	13 51.0	34.5 N	120.7 W
6	2 39.7	34.5 N	120.7 W
7	0 04.3	37 S	177 E
8	3 10.4	33 S?	57 E?
12	14 47.4	34.1 N	45.6 E
14	0 08.5	69.6 N	124.0 E
14	4 53.0	70.9 N	125.0 E
14*	7 19.3	30.2 S	71.4 W
15	8 28.9	57.9 N	169.8 W
15	21 49.0	69.6 N	123.0 E
16*	21 08.1	4 N?	127 E
17	20 54.8	23.8 S	67.5 W
18	3 25.5	10 N	127 E
19	3 32.5	34.5 N	120.7 W
19	6 50.7	7 N	105 W
21	18 50.8	16.2 S	85 W
21*	23 12.5	44.6 S	74 W
22	12 52.9	54.1 N	159.0 E
26	12 53.9	23.6 S	68 W
December 1	4 37.4	2 S	121 E
11	17 25.5	1.7 S	121.4 E
28*	18 20.1	55 N	163 E

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ACKNOWLEDGMENT OF EARTHQUAKE REGISTERS RECEIVED

The U. S. Coast and Geodetic Survey gratefully acknowledges the receipt of reports of instrumental records of earthquakes from the observatories listed below. Only the latest reports received are listed.

This Bureau desires to exchange bulletins with all seismological institutions, and will give immediate attention to any station not receiving Coast and Geodetic Survey seismological reports.

Stations	Bulletins
Apia (Preliminary)	June, 1930
Baku	June, 1930
Balboa	October, 1930
Barcelona	May, 1930
Batavia	May, 1930
Batavia (Principal Earthquakes)	September, 1930
Bombay	December, 1925
Cambridge	November, 1929
Cartuja	June, 1930
Charlottesville (Seismograms)	November, 1930
Chicago - University (Seismograms)	November, 1930
Chicago (Loyola)	December, 1928
Denver	March, 1930
De Bilt	December, 1930
Ebro, Spain	December, 1929
Florissant	June, 1930
Georgetown	October, 1930
Georgetown (Press Dispatches)	October, 1930
Guam	June, 1930
Hamburg	July, 1930
Hawaiian Volcano Observatory -	
Weekly Volcano Letter	November 6, 1930
Monthly Bulletin	July, 1930
Hohenheim	June, 1930
Honolulu	October, 1930
Hukuoka	December, 1929 (Annual)
Ithaca	March, 1929
Kobe.,	June, 1930
København	June, 1930
Kodaikanal	December, 1928 (Annual)
Konigsberg	December, 1927 (Annual)
Ksara	December, 1927 (Annual)
La Paz	April, 1930
La Plata	August, 1930
Lemberg	February, 1930
Leningrad	October, 1928
Manila	September, 1930
Manila (Principal Earthquakes)	October, 1930
Melbourne	September, 1930
Moncalieri	December, 1928 (Annual)
New Orleans	December, 1929
New York (Fordham)	December, 1929
Numazu	March, 1930
Osaka	December, 1929
Ottawa	October, 1930
Parc Saint Maur	July, 1930
Perth	December, 1929
Potsdam	December, 1928
San Fernando	December, 1929
St. Louis	June, 1930
Santiago (Chile)	December, 1928
Sitka	October, 1930

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ACKNOWLEDGMENT OF EARTHQUAKE REGISTERS RECEIVED
(continued)

Stations	Bulletins
Strasbourg	September, 1930
Sydney	September, 1930
Sydney (Principal Earthquakes)	September, 1930
Tokyo	December, 1926 (Annual)
Tananarive	April, 1930
Taunus	July, 1930
Toledo	June, 1930
Toronto	September, 1929
Tucson	November, 1930
Uccle	August, 1929
Upsala	December, 1927 (Annual)
Victoria	September, 1930
Wellington	May, 1930
Wellington (Principal Earthquakes)	September, 1930
Zagreb	June, 1930
Zikawei	July, 1930

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MISCELLANEOUS SEISMOLOGICAL ACTIVITY

GEODETIC WORK

Precise leveling operations were in various stages of progress in California during the last quarter of 1930 as follows: Goleta to Edna, San Diego through Ramona to Oceanside, Santa Margarita to Bakersfield, and Mojave to Barstow.

HYDROGRAPHIC WORK

No earthquake reports were received for the period covered by this report from vessels engaged in survey work.

TIDAL OBSERVATIONS

Tidal records were obtained at Fort Point (San Francisco) and La Jolla at the time of the November 4 shock near Point Conception. They are described in an article by Prof. Perry Byerly in the Bulletin of the Seismological Society of America for June, 1930.

SEISMOLOGICAL SUMMARY FOR 1927.

A table showing the distribution of earthquakes recorded in the United States, the regions under its jurisdiction, and adjacent regions.

International Seismological Centre

All dates are based on Greenwich civil time, counting from midnight to midnight.

An underscore is used to designate an earthquake sufficiently severe to be recorded at approximately ten or more North American observatories.

An interrogation mark following a date means that there is uncertainty concerning regional classification, i.e., shocks near state or national boundaries.

In NORTH AMERICA earthquake intensities are indicated as follows: Earthquakes of intensity I-IV, Rossi-Forel scale, are given no special designation; V-VI are marked (†); VII-VIII are marked (*); IX are marked (**). Earthquakes less severe than VII are destructive only to the extent of causing superficial damage. No aftershocks are tabulated except those sufficiently severe to be recorded at distant observatories, or cause additional local damage.

Regions and Dates	Number of earthquakes located provisionally	Number of earthquakes located with uncertainty
NORTH AMERICA		
Alaska: Jan. 16, 24; Mar. 24, 25, 30; Apr. 8, 17; May 31; June 30; July 6, 8, 28; Aug. 1, 1, 6; Oct. 24**, 25, 31; Nov 12†, 15, 19, 21, 23, 25; Dec. 9†, 31.....	26	
Canada: Jan. 9; Feb. 5, 6, 10, 24; July 25; Aug. 30; Sept. 19; Nov. 12.....	9	
United States:		
Alabama: June 16†.....	1	
Arizona: Feb. 11; Sept. 5.....	2	
Arkansas: May 7*.....	1	
California: Jan. 1**, 1*, 3, 3, 4, 4, 6, 7, 8, 13, 16, 17, 18, 22, 24, 29; Feb. 4, 4, 7†, 8, 8, 12, 12, 15, 15, 22, 23; Mar. 2, 7, 31; Apr. 5, 12, 16; May 15, 16, 28†; June 9, 24; July 8, 16; Aug. 4†, 10, 14, 20*, 26; Sept. 5, 6, 16, 18†; Oct. 5†, 8†; Nov. 4**, 6, 6*, 6, 7, 8, 8, 9, 19†; Dec. 2, 5, 8†, 9†, 11, 15, 24, 29, 31, 31.....	70	
Connecticut: Mar. 30.....	1	
Delaware: Feb. 5.....	1	
Idaho: Aug. 7.....	1	
Kansas: Jan. 7; Mar. 18.....	2	
Louisiana: Dec. 15.....	1	
Maryland: Nov. 5.....	1	
Massachusetts: Aug. 20.....	1	
Missouri: Feb. 1, 3.....	2	
Mississippi: Nov. 13.....	1	
Montana: Mar. 30; Oct. 24.....	1	
Nebraska: Oct. 14.....	1	

SEISMOLOGICAL SUMMARY FOR 1927.
(continued)

International Seismological Centre

Regions and Dates	Number of earthquakes located provisionally	Number of earthquakes located with uncertainty
NORTH AMERICA		
United States: (continued)		
New Hampshire: Mar. 9†.....	1	
New Jersey: June 1*.....	1	
New York: Mar. 12, 14, 29, 31; Oct. 24.....	5	
North Carolina: Oct. 27; Nov. 22.....	2	
North Dakota: Apr. 30.....	1	
Ohio: Jan. 29; Feb. 17.....	2	
Oregon: Apr. 9†.....	1	
South Carolina: Nov. 10.....	1	
Tennessee: Apr. 18; July 20; Aug. 13; Oct. 8†.....	4	
Utah: May 22; Nov. 23, 23.....	3	
Virginia: June 10.....	1	
Washington: Jan. 3; Mar. 28.....	2	
Wyoming: Mar. 24.....	1	
Central America and Mexico:		
Feb. 11; Mar. 15 (Panama); Aug. 10 (Panama), 10 (Panama); Dec. 5 (Panama); 11 (Panama).....	6	
West Indies:		
Mar. 1 (Cuba), 5 (Cuba); June 14 (P.R.); Aug. 2 (P.R.); Sept. 27 (P.R.); Oct. 19 (P.R.).....	6	
SOUTH AMERICA		
Jan. 20; Feb. 28; Apr. 6, 9, 14; May 22; June 10; Aug. 1; Nov. 14, 17, 21, 26.....	12	
EUROPE		
Feb. 14; May 15; June 26, 30; July 1; Sept. 11, 12,12	8	
ASIA		
Jan. 17; Feb. 3; Mar. 7 (Japan, Tango), 14, 15, 30; Apr. 13, 30; May 9, 22 (Kansu), 22, 22; June 2, 5, 18, 23; July 7, 11, 12, 14, 22, 23; Aug. 12; Sept. 16, 23, 24; Oct. 11; Nov. 12, 14, 14, 15, 22.....	32	
ATLANTIC OCEAN		
Mar. 6, 25; Apr. 29; May 13; June 19; Sept. 3.....	6	
ARCTIC OCEAN		
Jan. 7, 30.....	2	

SEISMOLOGICAL SUMMARY FOR 1927.
(continued)

Regions and Dates	Number of earthquakes located provisionally	Number of earthquakes located with uncertainty
PACIFIC OCEAN		
N. E. of lat. 0°, long. 180°: Jan. 3; Feb. 12, 24, 27; Mar. 9, 12, 13, 14, 20 (T.H.), 20, 21, 21, 22, 25; Apr. 16, 17 (T.H.), 21, 27, 30 (T.H.); May 1 (T.H.), 7, 9, 19, 22 (T.H.), 31; June 2 (T.H.), 7, 18, 18, 28, 30 (T.H.); July 6 (T.H.), 7 (T.H.), 25 (T.H.), 26 (T.H.), 27 (T.H.), 31 (T.H.); Aug. 3 (T.H.), 20, 21, 22, 23 (T.H.); Sept. 28 (T.H.), 30 (T.H.); Oct. 2 (T.H.), 2 (T.H.), 2, 5 (T.H.); Nov. 19.....	49	
S. E. of lat. 0°, long. 180°: Feb. 26; Mar. 23, 28, 30; Apr. 1; May 21; June 6, 17; July 3, 5; Sept. 10; Nov. 21.....	12	
S. W. of lat. 0°, long. 180°: Jan. 24, 24, 25, 25, 26, 26; Feb. 1, 4, 25; Mar. 3, 25; Apr. 27; May 3, 11, 13; June 3, 11; July 10, 14, 18; Aug. 4, 10; Sept. 13, 17; Nov. 7, 16; Dec. 1, 11.	28	
N. W. of lat. 0°, long. 180°: Jan. 3, 5 (Guam), 6 (Guam)(3), 10 (Guam), 31; Feb. 9 (Guam)(2), 16, 16, 16, 16, 18 (P.I.), 21, 22; Mar. 3, 16, 18, 20; Apr. 19, 27, 27; May 16, 22 (P.I.); June 14, 20; July 3 (P.I.), 11, 17 (Guam), 18 (Guam), 24 (Guam), 30; Aug. 5, 8, 8, 12, 18, 20, 23, 23 (Guam), 24, 24; Sept. 2 (Guam), 30; Oct. 26 (Guam), 28; Nov. 10 (Guam), 13 (Guam), 18 (P.I.), Dec. 19 (Guam), 23 (Guam), 28.....	53	
INDIAN OCEAN		
Mar. 21; May 10; June 14; July 29; Nov. 8.....	5	
LOCATIONS UNKNOWN		
See quarterly summaries.		(431)
	366	

International Seismological Centre

SUMMARY OF REGIONAL DISTRIBUTION OF EARTHQUAKES RECORDED DURING 1927.

Regions	Number of earthquakes located provisionally
North America:	
United States:	
Intensity I-IV, R.F. scale	90
Intensity V-VII, R.F. scale	19
Intensity VIII-IX, R.F. scale	3
Remainder of North America	47
South America	12
Europe	8
Asia	32
Atlantic Ocean and adjacent waters	6
Arctic Ocean	2
Pacific Ocean and adjacent waters:	
On or north of equator; east of longitude 180°	49
South of equator; east of longitude 180°	12
South of equator; west of longitude 180°	28
On or north of equator; west of longitude 180°	53
Indian Ocean and adjacent waters	5
Total	366

Total Number of Earthquakes Recorded

Locations provisionally known..... 366
Locations unknown, including those listed as uncertain in the quarterly reports..... 431

Total number of earthquakes recorded, 1927... 797

International Seismological Centre

EARTHQUAKES IN THE UNITED STATES DURING 1927.

International Seismological Centre

CALIFORNIA-MEXICO.

January 1, 1927. 8h 17.0m, G. M. T.
Provisional epicenter: 32.7° N., 115.5° W.
Maximum intensity: IX R. F. scale.
Area affected: 50,000 square miles.(Estimated)

Reports were collected from ten localities and the shock was recorded instrumentally at ten stations listed at the beginning of Table III of the first quarterly report for 1927. About 75 aftershocks were recorded on the Wood-Anderson seismograph at Tucson, Arizona. The greatest damage occurred at Mexicali and Calexico. All poorly constructed buildings were damaged and in some cases destroyed. A large part of the property loss was due to resulting fires which were difficult to fight because of impaired water service. Mexicali appears to have suffered more than Calexico. It is doubtful whether the property damage reached $1,000,000 but that figure may be taken as a maximum.

The shock was very similar to that of June 22, 1915, both in location of epicenter and intensity. Both were felt slightly as far as Los Angeles and the property damage appears to have been about the same. The 1915 shock is described in the Bulletin of the Seismological Society of America, Vol. V, September, 1915, pp. 130-149, and some interesting supplementary information appears in Vol. VI of the same publication.

The epicenter can not be determined with certainty from instrumental data because of insufficient knowledge of precise travel time data for this region. A discussion of the data, taking into account certain new developments in the study of earthquake wave propagation, points to an epicenter south of the border in Mexico. Some confirmation of this is found in the apparently greater intensity in Mexicali as compared with Calexico and points north; also, in the fact that a center of seismic activity has been found in the Crater Lake region about 25 miles south of Calexico. (See preceding references). In the 1927 shock the following press report may have some significance: "Black Butte, a volcano 40 miles south of the border was active, spouting smoke and vapors." Lack of detailed information south of the border is due to the extremely barren nature of the country.

CALIFORNIA, Eureka.

August 20, 1927. 20h 05m 44s, G. M. T.
Provisional epicenter: Humboldt Bay.
Maximum intensity: VIII R. F. scale.
Area affected: 5,000 square miles.

Most of the damage resulted from falling of chimneys, cracking of walls, and breaking of glassware. Some water pipes were also broken. The courthouse at Eureka suffered severely from cracking of walls and breaking of plaster, but there was no general destruction of property. The shock was recorded at five seismographic stations.

EARTHQUAKES IN THE UNITED STATES DURING 1927.
(continued)

International Seismological Centre

S. E. ALASKA. October 24, 1927. 15h 59m 42s, G. M. T.
Provisional epicenter: 58.3° N., 136.5° W.;
in or near Cross Sound.
Maximum intensity: VIII R. F. scale.

This shock was recorded instrumentally all over the world. Cables in the straits were broken in several places but otherwise damage was confined to cracked walls.

Difficulty was experienced in locating the epicenter of this shock because of poor arc intersections. The one epicenter which made possible the construction of a smooth curve for the travel time of P lay in Cross Sound about 150 kilometers northwest of Sitka. This location appears to be verified by the azimuth of the first impulse at the Sitka seismographic station and the observed phenomena in and near the sound. The P curve almost coincides with that drawn by Professor Perry Byerly for the Montana earthquake of June 28, 1925.

CALIFORNIA, Point Conception.

November 4, 1927. 13h 51m 00s, G. M. T.
Provisional epicenter: 34.5° N., 120.7° W.
Maximum intensity: IX R. F. scale.
Area affected: 100,000 square miles.

There was partial destruction of property including displacement of railroad bridges and damage to the right of way but the total loss was relatively small because this locality is sparsely settled.

In working up the instrumental results it was found that the epicenter was very near, if not on, the promontory known as Point Conception rather than off the coast. This location is consistent with a fact observed in recent years that in the 1,000 kilometer zone the normal S wave all but fades out of the seismographic record, and some 15 seconds later an exaggerated activity showing surface wave tendencies makes its appearance. In this earthquake the Tucson record was a typical example and the actual distance to epicenter is less than if a normal S activity is assumed.

In further confirmation of this epicenter median lines were drawn for several pairs of stations which by chance were equidistant (as evidenced by equal travel times for P) and their intersections were found to lie practically on the point. The equidistant stations were Sitka and St. Louis, Georgetown and Honolulu, Zi-ka-wei and Rome, and Sverdlovsk and Cartuja. The last pair of stations gave results which were inconsistent with all the known facts. Furthermore, a smooth travel time curve was constructed using Point Conception as the epicenter.

MINOR ACTIVITY.

A comprehensive idea of the character of minor seismic activity in the United States during 1927 can be best ascertained from the preceding table which shows the distribution of earthquakes by states. 112 separate earthquakes were distributed over 28 states. The most severe of this group were as follows:

EARTHQUAKES IN THE UNITED STATES DURING 1927.
(continued)

International Seismological Centre

CALIFORNIA: Santolle. February 7, 1927; 4h 28m, G. M. T.; intensity V; area affected: 250 square miles. A rather sharp local shock near Los Angeles. Some alarm but no damage. Not recorded at nearby seismographic stations.

NEW HAMPSHIRE: Concord. March 9, 1927; 4h 06m, G. M. T.; intensity V; area affected: 2,000 square miles. Reported felt in ten localities.

OREGON: Halfway Cornucopia and Richland. April 9, 1927; 5h 00m, G. M. T.; intensity V; area affected: 250 square miles. Meetings were interrupted but no damage.

ARKANSAS: Near North Jonesboro. May 7, 1927; 8h 30m, G. M. T.; intensity VII; area affected: 400,000 square miles. Recorded at two seismographic stations; felt in Arkansas, Illinois, Kentucky; Missouri and Tennessee. Damage was limited to broken chimneys. This shock was typical of other widespread but relatively weak Mississippi Valley disturbances.

CALIFORNIA: San Jose. May 28, 1927; 17h 37m, G. M. T.; intensity VI; area affected: 4,000 square miles. A rather sharp shock causing superficial damage such as cracking of plaster and tipping over of light objects. (See article by Professor Perry Byerly in the Bulletin of the Seismological Society of America, Vol. VII, No. 3, September, 1927).

NEW JERSEY: Asbury Park and Long Branch. June 1, 1927; 12h 20m, G. M. T.; intensity VII; area affected: 3,000 square miles. Recorded at seismographic station in New York City. A few chimneys were knocked over and some walls were cracked. Superficial damage resulted from the falling over of unstable articles. A rather widespread shock for this region.

ALABAMA: Scottsboro and Gurley. June 16, 1927; 13h 00m, G. M. T.; area affected: 2500 square miles. Not recorded instrumentally. This shock was marked by "deafening" and roaring sounds. Much alarm but no damage.

CALIFORNIA: Santa Monica Bay. August 4, 1927; 12h 24.5m, G. M. T.; intensity VI; area affected: 8,000 square miles. Recorded at six seismographic stations in North America. This shock evidently originated some distance off shore. Only superficial damage in Los Angeles and vicinity was reported.

CALIFORNIA: Owens Valley. September 18, 1927; 2h 6.9m G. M. T.; intensity VII; area affected: 10,000 square miles. Recorded at nine seismographic stations. Felt rather sharply in Fresno and outlying points but only superficial damage was reported.

CALIFORNIA: Point Conception. November 19, 1927; 3h 32.5m, G. M. T.; intensity VI; area affected: 3000 square miles. Recorded at five seismographic stations. Evidently a sharp aftershock of the November 4th disturbance. Only superficial damage was reported.