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Seismic Activity in Western Canada, 1955 to 1959 Inclusive

W. G. Milne and K. A. Lucas

ABSTRACT:—This paper lists the 766 earthquakes that occurred during 1955 to 1959 in Western Canada, and that were recorded on the network of seismograph stations reporting to the Dominion Astrophysical Observatory at Victoria, B.C. Earthquakes whose epicentres have been determined are plotted on maps, one map for each year. One additional map includes all earthquakes in excess of magnitude 4 for which data are available. In this paper Richter magnitudes for the local tremors are included for the first time.

RÉSUMÉ:—La présente étude donne la liste des 766 tremblements de terre qui sont survenus dans l'Ouest canadien entre 1955 et 1959 et qui furent enregistrés par le réseau de stations séismographiques, lesquelles relèvent de l'Observatoire fédéral d'astrophysique de Victoria (C.-B.). On a indiqué sur des cartes, soit une carte pour chacune des années en cause, les tremblements de terre dont les épicentres ont été déterminés. Une carte supplémentaire se rapporte à tous les tremblements de terre d'intensité supérieure au degré 4 et au sujet desquels on dispose de données. Dans le présent travail, c'est la première fois qu'on a recours aux intensités définies par Richter pour désigner les secousses locales.

Following the installation of sensitive seismograph stations in southwestern British Columbia in 1951, a series of papers was initiated which listed the seismic activity in this area. For the first four years the reports were published annually, but this paper is a compilation of the seismic data for the years 1955 to 1959 inclusive. It includes earthquakes in Canada west of the 113th meridian, although it is a complete list of earthquakes for the southwest area only.

The seismic data are gathered from a network of five stations of which Victoria is the principal. Contributing seismographs are located at Alberni, on Vancouver Island, Horseshoe Bay (Vancouver), Banff, Alta., and Lillooet. Readings are obtained from seismograph stations maintained by the University of Washington at Seattle, and from the stations of the United States Coast and Geodetic Survey at Hungry Horse Dam, and Butte, Montana. The distribution of stations permits the accurate location of epicentres lying in the region bounded by the coastal stations, and a reasonable determination of the locations of the events in southern British Columbia and coastal waters.

INSTRUMENTS

Past issues of this series have described the instrumentation as it existed prior to 1955. Since then, some minor changes made necessary during the calibration in 1957 have been effected at the Victoria station.

At Alberni, the short-period Willmore-Sharpe seismometers were all replaced in July 1957 by Willmore seismometers of the moving magnet type with a period of one second. At this time, the galvanometer of frequency of thirty cycles per second was kept for the vertical recording, and Turner galvanometers, each with a period of twenty seconds were installed on the horizontal components. The station was calibrated at this time with the Willmore calibration bridge (Willmore, 1959), and the response curves for this and the other stations may be found in the January-March 1958 issue of the *Seismological Bulletin* published by the Dominion Observatory.

By 1955, the Horseshoe Bay station was already equipped with Willmore moving magnet seismometers. In late 1956, the short-period galvanometers on the horizontal components were replaced by Turner galvanometers of twenty seconds period. The galvanometer on the vertical seismograph has a period of 0.25 seconds.

In July 1955, a seismograph station consisting of a Willmore seismometer, with a short-period galvanometer (0.25 seconds) was established at the Banff School of Fine Arts in Banff, Alberta. Originally a Willmore recorder was used, but in August 1959 this was replaced by a 30 mm/min Benioff recorder. The Banff seismograph is about a mile from the main railway line, and is sometimes greatly disturbed by the vibrations of passing trains.

After a request from the British Columbia Department of Mines, a Willmore station was installed at Lillooet in July 1957. Although the time control here has always been difficult to maintain, the main purpose of the station was to search for local tremors associated with the geological systems along the Fraser River. This has been accomplished, and the few local tremors recorded are listed in Table I.

SCALES OF INTENSITY, AND MAGNITUDE

In the 1951 report (Milne and Lombardo, 1952) a scale was devised to indicate relative sizes of earthquakes. This was related to the modified Mercalli intensity scale of 1931. Its symbols were such that intensity I referred to a local shock not felt and recorded on only one seismograph station although all three were properly operating; intensity II referred to a tremor recorded at two stations; and intensity III earthquakes were recorded at all three stations. Earthquakes of intensity greater than III were always felt, and from here the scale was the Mercalli scale. When available, Pasadena magnitudes were listed.

97856-9—1½

The Mercalli scale is used for intensities of the earthquakes that were felt and are described later in this text. In Table I, however, a scale based on the Richter magnitude scale is used, the magnitudes being the simple average of the magnitudes from all the stations recording a particular tremor. In the various treatments of the subject of magnitudes there is usually a term called a station correction which needs to be added to or subtracted from each computed value of magnitude for a particular station. Such seems to be the case here, but it is not the purpose of this paper to compute these values. In general, magnitudes recorded at Horseshoe Bay do not seem to need correction, Victoria magnitudes require a positive correction, and Alberni magnitudes require a negative correction, both corrections being of the order of 0.5. It is notable that the larger tremors and the tremors at greater distance have a smaller scatter in individual magnitudes. For some of the large earthquakes magnitudes are obtained from the U.S.C.G.S. epicentre cards.

METHODS OF LOCATING EPICENTRE

Seismic wave velocities used for the locating of epicentres are obtained from travel-time curves constructed for the Vancouver Island area on the basis of underwater explosion projects (Milne and White, 1960). Actually this does not represent any change from the velocities adopted in the previous papers, for the velocities computed for this area are identical with those used before (Hodgson, 1953), provided the foci are assumed to be at least as deep as the base of the low-velocity sedimentary layers.

To locate the epicentre of a given tremor, the S-P time is read for each station, and the corresponding (P-O) time is computed. From this an origin time for one station for one earthquake can be found. This is repeated for each station and the total number averaged for each individual earthquake. The average is used to obtain an observed (P-O) time for each station. From the travel-time curve a preliminary estimate of the distance of the

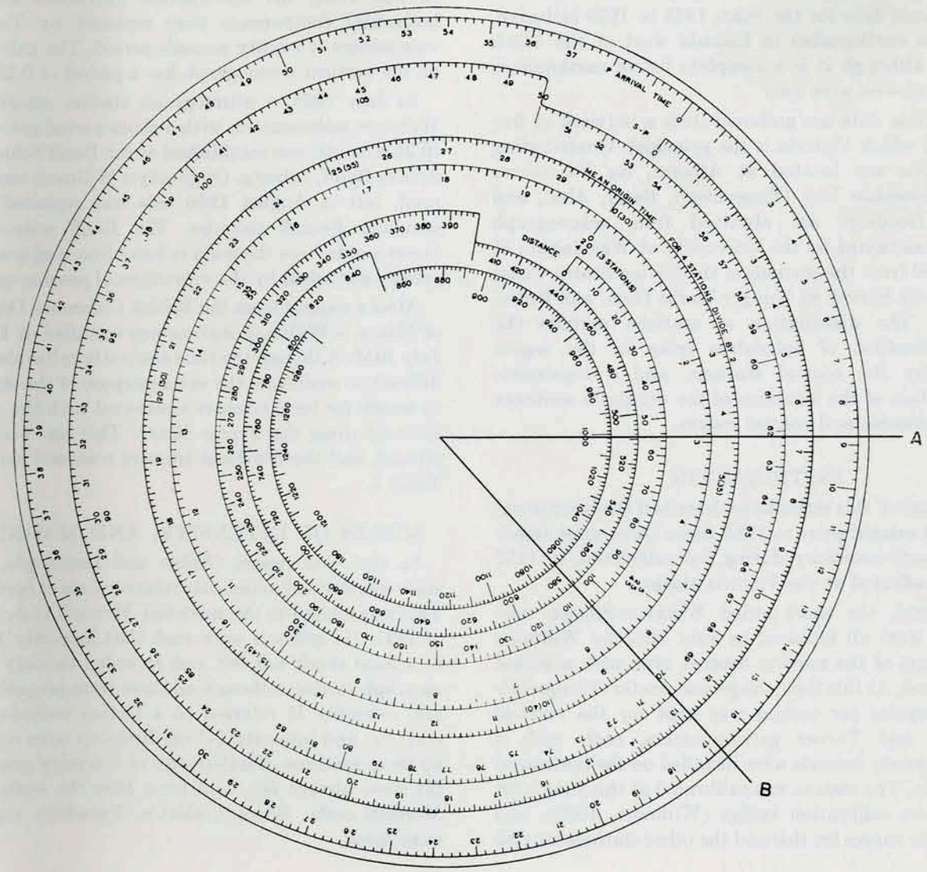

FIGURE 1.

epicentre from each station is obtained. On a map (scale = 1:1,000,000) arcs of the corresponding radius are drawn, one centred on each station, to obtain a position for the epicentre. When using three stations, two alternatives may result: (*a*) an exact intersection of all the arcs, or (*b*) the formation of a triangle. In the first case, the intersection is taken as the epicentre. In the second case, a fit is attempted by altering the epicentre in such a way as to keep the P arrival time at the stations unaltered. If this is impossible, the "centre" of the original triangle is taken as the epicentre.

Earthquakes were located as described above until the end of 1958. After this time they were located using a type of circular slide rule, designed and made by Donald Andrews of the Dominion Astrophysical Observatory, and shown in Figure I. Essentially the slide rule carries out all the above operations, and does it more rapidly than by hand.

As is to be expected, some of the epicentres are more accurately located than others. Epicentres lying close to the three coastal stations, and which are recorded by them all, are the most accurately located. The length of the sides of the triangles are usually of the order of 0.2′ of arc. Using the Seattle times it is sometimes possible to extend the area in which accurate determinations may be made to include northern Puget Sound. For tremors off the coast of Vancouver Island, and in the Queen Charlotte Islands region, additional readings have frequently been obtained from the *United States Coast and Geodetic Survey Seismological Bulletin*, and from the *B.C.I.S. Bulletin* for Hungry Horse, Butte, Bozeman, and upon occasion for Sitka seismographs. Although the distribution of stations permits a reliable latitude reading to be obtained for these latter epicentres, considerable error can result in the longitude reading because all the stations are east of them. An error of 0.5° probably is not unusual in the longitude readings for these epicentres. For tremors in the southeastern part of British Columbia, Banff and Hungry Horse, readings are combined. Ambiguity exists in the choice of some of the epicentres, in addition to a considerable error in each position. In Yukon Territory epicentres are based upon "felt" reports, and upon occasion from the U.S.C.G.S. epicentre cards.

In the table of earthquakes, the accuracy of location of a given epicentre is indicated by the letter assigned it under the column headed "Q". In brief, a rating of "a" indicates that an epicentre could be found which corresponds exactly to the arrival times at each of the stations. A "b" rating indicates that when arcs were drawn from each station, a small triangle resulted (one having sides not exceeding 06′). This triangle could not be modified in the way described above. A "c" rating indicates that only 2 stations reported the earthquake, the position chosen being based, in cases of small tremors, on the assumption that the proper one of the two possible solutions was that lying farthest from the station which did not report the tremor. In other cases, a "c" rating indicates that a very large triangle was found which could not be modified in any way.

The maximum intensity of any particular tremor is indicated by a Roman numeral following the descriptive location. It is based on the modified Mercalli scale of 1931, and the actual rating for tremors having epicentres in Canada is found from a study of the "felt" reports received by this office. The following is the version of the modified Mercalli scale of 1931 that was used to determine the intensity of the various tremors.

Modified Mercalli Intensity Scale

I Not felt except by a very few under especially favorable circumstances.

II Felt only by a few persons at rest, especially on upper floors of buildings; delicately suspended objects may swing.

III Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration like passing truck. Duration estimated.

IV During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make creaking sound. Sensation like heavy truck striking building. Standing motor cars rock noticeably.

V Felt by nearly everyone; many awakened. Some dishes, windows, etc. broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.

VI Felt by all; many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.

VII Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.

VIII Damage slight in specially designed structures; considerable in ordinary substantial buildings with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Disturbs persons driving motor cars.

IX Damage considerable in specially designed structures; well designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.

X Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundation; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.

XI Few, if any masonry structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.

XII Damage total. Waves seen on ground surfaces. Lines of sight and level distorted. Objects thrown upward into the air.

DETAILS OF PARTICULAR EARTHQUAKES

January 11, 1955

A tremor originating in the western Olympic Mountains was felt over an area extending from Victoria and the southern shore of Vancouver Island to 50 miles south of Port Angeles. The intensity in Port Angeles was IV, a value based on the reports of the U.S.C.G.S. In Victoria, the intensity was III. The station received several phone calls from interested citizens, but no damage was reported. There were no reports that this tremor was felt in Vancouver or on the mainland.

February 24, 1955

A slight earthquake on the northern Olympic peninsula was felt in Victoria by a few persons. The maximum intensity at Victoria was estimated as II. The tremor appeared to have greater depth than usual; from data at the three Canadian stations, the depth was determined to be greater than 15–20 km.

March 26, 1955

An earthquake originating northeast of Everett, Washington, was reported felt over an area of approximately 8,500 square miles of western Washington and in southwestern British Columbia. The felt area extended north to Anacortes, Washington, and west to Victoria. The maximum intensity was VI, and in Victoria it was IV; it was noticed by many Victoria residents, some of whom reported that dishes danced on their shelves. It was not observed in the communities of Cloverdale, White Rock, and Huntington on the southern Canadian mainland.

July 5, 1955

A number of lower Vancouver Island residents felt a brief tremor which was located northeast of the Saanich peninsula. No damage was reported. The maximum intensity appears to have been around III.

September 11, 1955

This tremor, with its epicentre north of Cape Flattery in the Strait of Juan de Fuca, was felt in Victoria and the surrounding areas at 6 p.m. P.S.T. The intensity was much greater in the Olympic peninsula than in Victoria. In Neah Bay, merchandise fell from the shelves and broke; small objects were shifted; and concrete buildings shook. On Tatoosh Island at the weather bureau office, earth noises were heard in addition to the rattling of windows and swinging of barometers. At Clallam Bay, the noises were described as similar to "thump-like blasts". At Neah Bay, a lighter shock was felt about 15 seconds later. In Victoria, the only damage reported was an unconfirmed claim that the tremor shifted a doorstep 2 to 3 inches outwards from the wall. When the house was visited the next day, the step had been repaired, and a neighbour reported that he had not felt the tremor at all. No other damage was reported in Victoria, and no reports were received that the tremor was felt on the mainland.

February 8, 1956

A wide area of the Pacific northwest felt a mild tremor shortly before 5 p.m. on February 8. The intensity was probably around III, since the station received many phone calls, but no reports of any rattling of dishes and windows. The epicentre appears to have been in the Gulf Islands north of San Juan Island. The tremor was felt generally in Victoria, Vancouver, and New Westminster, and in western Washington. At Mount Vernon, two shocks were felt, one at 4:55 p.m. and the other at 5:20 p.m. The first shock was considerably stronger.

February 19, 1956

A tremor was reported felt at 6:20 p.m. P.S.T. at Cape St. James and on McInnes Island. Since it was not reported in any of the newspapers of that area, and this station did not receive any questionaires, the intensity cannot be estimated. Pasadena reports a magnitude of $6\frac{3}{4}$.

February 23, 1956

On this date, the residents in the Haney and Maple Ridge area east of Vancouver felt a distinct shock, accompanied by a rumbling noise. To quote a letter received from Joseph Turnock of Haney, B.C.:

"I find that the earth tremor was felt over a considerable area from one mile east of my home, one mile south and up to six or eight miles west". Mr. Turnock's house is located in the valley of the Alouette River $3\frac{1}{2}$ miles northeast of Haney. It would thus appear to be highly localized. There was no record of this tremor in any of the Vancouver papers.

March 27, 1956

The *Vancouver Sun* reported two tremors were felt on the lower mainland on this day. The following is their account:

"Two small earthquakes rattled windows in the lower Fraser Valley today. The shocks were centred in the Hammond area. The first, at 7:31 a.m., was weak. The second, at 7:34 a.m. was of moderate intensity, and was felt in Vancouver and on Vancouver Island".

These were recorded.

April 8, 1956

This shock, originating in the Gulf Islands area, shook Victoria and the lower Vancouver Island more strongly than usual. One Victoria resident reported "The house shook. The stove pipes rattled. There were two distinct shocks". At Milne's Landing, near Sooke, one family reported that plaster was cracked by the quake. In Saanichton, a water pipe was partly loosened from the ceiling in the basement. The tremor was not generally observed north of the Saanich peninsula, although one person reported feeling it in Cobble Hill, about 40 miles north of Victoria. The disturbance was also generally felt in northwestern Washington, where creaking houses, rattling windows and dishes, and swaying trees and bushes were reported.

November 2, 1956

At approximately 8:15 p.m. Yukon Standard Time, the residents at Destruction Bay, Quill Creek, and Haines Junction experienced a moderately strong earth tremor. The intensity at Haines Junction was IV; there window panes rattled and buildings trembled, although no damage was done. At Destruction Bay and at Quill Creek, the intensity was greater, being of the order of V, and slight rumbling noises were also heard. The following is an extract from the RCMP report of the disturbance:

"At Quill Creek, Y.T., the earthquake became so strong at approximately 8:15 p.m. that men who were sleeping in the Hudson's Bay Exploration and Development Co. Ltd. bunkhouses at that point were shaken by their beds being moved by the quake. A large, round-shaped oil storage tank holding approximately 1,500 gallons of oil and located in the company's yards at Quill Creek, began to move back and forth on its base. At one time, it was thought the tank would fall; however, the earthquake ceased, and after rocking back and forth for a few minutes, it became still, in its usual position. No damage was done in the Quill Creek area".

No other areas reported this earthquake.

97856-9—2½

November 17, 1956

A tremor on this date at 12:30 p.m. was felt generally on the Queen Charlotte Islands, along the Skeena River valley as far east as Hazelton, and north to Ketchikan, Alaska. The epicentre was apparently in Dixon Entrance about 135 km northwest of Massett, Queen Charlotte Islands. The U.S.C.G.S. gave its magnitude as 6.5. The greatest reported intensity, V, was at Massett which lies at the northern end of the Queen Charlotte Islands. A report from that community states that the tremor was felt by all the population. No subterranean noises were heard, but the creaking of buildings was pronounced. Both trees and power lines swayed, and a pendulum clock was stopped at 12:30. A correspondent described the effect on the populace as being one of general alarm. Other centres on the Queen Charlotte Islands reported smaller intensities—dishes rattling and hanging objects swaying. It appears to have been felt mainly by persons indoors; those outside often did not notice anything. In the Skeena Valley and elsewhere on the mainland a swaying motion was felt, with some swinging of delicately suspended objects. It was generally felt by only a small proportion of the population of mainland centres.

January 26, 1957

The location of this quake is given in *United States Earthquakes, 1957*, as 48°20′ north, 122°26′ west. The Canadian network was unable to locate this tremor as the Horseshoe Bay station was out of operation for repairs.

The tremor was felt over a wide area extending from southern Puget Sound north to the lower Fraser Valley, and west to southern Vancouver Island. The maximum intensity of VI was reported at Clearlake, Washington, where plaster cracked and fell on the second floor of the school. The tremor was felt by all, and frightened a few. In Canada, the maximum intensity reported was IV; dishes, doors and windows rattled in the Victoria, Gulf Islands, and Chilliwack areas. In the rest of the Fraser Valley, the tremor was described as having a mild, swaying motion, and was not felt by a large proportion of the population. Beyond Duncan on Vancouver Island the tremor was not observed at all.

March 16, 1957

A fairly strong tremor occurring southeast of Powell River, B.C. was recorded on the Victoria, Horseshoe Bay and Alberni stations, as well as at Seattle. Although the magnitude was determined to be 3.7, it was not reported felt, nor was it mentioned in the *Powell River News*. Questionnaires sent out by this office were not returned. However, with exception of the town of Westview near Powell River, this area is very sparsely settled.

September 14, 1957

This tremor originated southeast of Saltspring Island at 8:22 p.m. P.D.T. It was felt at Lake Cowichan, Dun-

can, Cobble Hill, and Victoria. No damage was done, and in most cases, people felt a slight trembling but did not observe any noises or any disturbed objects. It was reported, not felt, on Galiano Island, Ladysmith, Jordan River, and Port Renfrew.

December 16, 1957

This was a major earthquake, recorded throughout the world. The magnitude was given as 6. It was located less than 30 miles off the west coast of Vancouver Island near Nootka Sound. Once again due to the sparsely settled nature of the northern end of the island, no damage was reported. Felt reports were received from Alert Bay, Campbell River, and Kelsey Bay, some 90 miles northeast of the epicentre. At Campbell River, the quake was described as being so slight that many persons engaged actively outdoors did not notice it.

July 10, 1958—Yakutat Bay

Most damage by this quake was done at Lituya Bay, Alaska, where three persons were killed. An eyewitness reported that some 500 yards off the south end of Khantaak Island rose about 20 feet and then fell into Yakutat Bay. Glaciers were also reported as being shattered, and giant waves were sent racing down the channel. The quake was reported as being felt at Juneau, Ketchikan, Skagway, and Yakutat in Alaska, and at Aishihik, Teslin, Watson Lake, and Smith River in the Yukon. For a complete report of this earthquake refer to the July 1960 issue of the *Bulletin of the Seismological Society of America.*

January 16, 1959

This tremor was felt slightly in the Queen Charlotte Islands and in Prince Rupert.

February 26, 1959

According to the *Vancouver Sun* of February 26, 1959, dishes rattled, windows shook and pictures swayed at 11:34 p.m. Wednesday when an earthquake, the second in a week, disturbed Queen Charlotte city. No damage was reported. However, neither this tremor, or the one which preceded it, were recorded on any seismograph station.

August 26, 1959

At 02:27 a.m. P.S.T., an earthquake of magnitude 5.7 occurred between the Queen Charlotte Islands and the British Columbia mainland. The RCMP reported that it was not felt on the Queen Charlotte Islands.

September 4, 1959

Only a very small proportion of the population of Victoria felt this tremor whose epicentre was in the Gulf Islands. Victoria station received several phone calls from people living in the Mount Douglas area of Victoria who reported they had heard a rumbling noise and felt some vibration. It was also noticed by several children playing outside. There was no displacement of suspended objects. No damage was reported.

December 12, 1959

About 10:30 p.m. P.S.T., a fairly sharp tremor shook southwestern British Columbia and northwestern Washington. The epicentre woas lcated in the Gulf Islands just north of San Juan Island. The magnitude was 4.5 and the intensity in the eastern parts of Victoria reached IV. Doors swayed, pictures moved, dishes rattled and chimes on an electric doorbell swung. Many persons in Victoria heard a low rumbling which they compared to an oil furnace turning on. Some persons reported feeling two shocks. This tremor was reported felt in Victoria, Vancouver, Nanaimo, Duncan, Sooke, Sidney, Anacortes, Everett, Marysville, Seattle, Port Coquitlam and Chilliwack. No damage resulting from the tremor was reported.

DISCUSSION OF EPICENTRES

As before, the epicentres determined during the period under discussion are plotted on maps, one map for each year from 1955 to 1959 inclusive. These maps have been made to cover the whole western area of Canada, and will continue to be reproduced on this scale. The size of the circles representing epicentres relates to the magnitude of the particular earthquake as indicated in the legend. Included also is a map, to the same scale, giving all earthquakes of magnitude 4 or greater recorded during the period from 1850 to date. Open circles on the map represent "c" quality epicentres, whereas solid circles represent epicentres of "a" or "b" quality.

Within the populated area of British Columbia there were 22 earthquakes of sufficient strength to be noticed by several communities. None caused other than very minor damage. That of December 16, 1957 was of a magnitude large enough to be recorded at many distant stations. One other earthquake that caused some alarm in British Columbia, Alberta and even in Saskatchewan was the Montana earthquake of August 18, 1959. Although the epicentre was approximately 300 miles south of the Canadian border, the long rolling motion of the earthquake was felt from Regina to Hope; but no material damage has been reported from areas nearest the epicentre. The only unusual item seemed to be the warming of the water for a few days in the hot springs pools at Radium, B.C. Reports indicate the maximum intensity was III on the Mercalli scale. This earthquake is not plotted on the map and not listed in the table, yet was felt in Canada, and so should be included in this report.

The distribution of epicentres on the maps, and the attempt to infer geological implications from alignments of the plotted points is always an interesting aspect of this work. There are many lines that can be drawn through series of epicentres to represent geological faults, but they would have scant observational support. Except for the very obvious, no attempt is made here to show relations between groups of epicentres. This obvious group of earthquakes is represented by the epicentres lying along a band from the northwest tip of the Queen Charlotte Islands and coming to an abrupt end west of Vancouver Island, near 49°N. The major tremors during this period have occurred here, and it is reasonable to say this is the area where most of the earthquakes above magnitude 5 will occur along the coast. Exceptions to the rule, however, are always present. The 1946 earthquake in the north Gulf of Georgia is one recent example.

In the area adjacent to Vancouver Island the Royal Canadian Navy carries out exercises which involve detonating of underwater explosives. However the RCN has always been very cooperative in checking their records and it is felt that very few of the events listed can be of RCN origin. This leaves an area between Vancouver, Nanaimo and Texada Island in the mid-Gulf of Georgia as a region with a very high incidence of mild earth tremors. There is no reason for omitting them from the map, although the area is one where the past record has shown no unusual activity.

During the process of calculating an epicentre for these earthquakes, the depth of focus is assumed to be zero, or very small. For a few earthquakes near Vancouver it was found that a better fit could be obtained if a slight focal depth were permitted, say 10 to 20 kilometres. The measurement of this depth is very difficult, unless there is a seismograph available near the epicentre that is not used for the determination of the epicentre. This latter condition has not been filled here, and it is only possible to say that some of the foci appear not to be surface foci.

The seismograph at Lillooet was installed to ascertain if there were any small earthquakes along this section of the Fraser River. It is considered that there is a fault running parallel to the Fraser River here, along which there may be some seismic activity. Between July 1957, and December 1959 there were three earthquakes within 20 miles of Lillooet, two of which were of magnitude too small to be significant. The third, number 1305, was located. Generally this seems to be an area of very low activity, if this 30-month period can be taken as representative. New stations within range of this area will continue to keep a record of activity along this fault, although the Lillooet station itself has been closed.

Near Banff there appear to be a few very minor tremors, and no large ones—that is, above magnitude 3—during the 5-year period covered by this report. All recorded earthquakes are listed in Table I.

Dominion Astrophysical Observatory,
Victoria, B.C.
March, 1961.

Bibliography

Willmore, P. L., The application of the Maxwell impedance bridge to the calibration of electromagnetic seismographs: *Seismol. Soc. Am. Bull.*, v. 49, no. 1, 1959.

Milne, W. G., and Lombardo, F., Canadian west coast earthquakes, 1951: *Dom. Obs. Pub.*, Ottawa, v. 16, no. 3, 1952.

Hodgson, J. H., A seismic survey in the Canadian Shield: *Dom. Obs. Pub.*, Ottawa, v. 16, no. 5, 1953.

Milne, W. G. and White, W. R. H., A seismic survey in the vicinity of Vancouver Island, B.C.: *Dom. Obs. Pub.*, Ottawa, v. 24, no. 7, 1960.

TABLE I

Map No.	Date	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
				1955			
623	Jan. 5	16 05 34	49°.4	124°.4	II		West of Alberni
624	Jan. 7	17 08 26	—	—	—		Possibly a blast: Centre due west of Victoria 14 km
625	Jan. 7	17 54 24	48°41′	123°10′	b	1.3	Gulf Islands
626	Jan. 10	12 19 05	48.4	123.9	d	—	
627	Jan. 11	10 20 11	47 58	123 50	b	3.1	Southwest of Port Angeles. Felt at Port Angeles, Ournalt, Victoria
628	Jan. 19	16 00 07	48.0	124.5	c	2.0	Olympic Mtns.
629	Jan. 20	10 16 07	48 49	122 25	c	2.0	Bellingham, Washington
630	Feb. 7	00 17 57	48 48	122 20	c	2.1	Northeast of Bellingham
631	Feb. 11	21 45 25	48 45	122 44	b	2.2	Bellingham region
632	Feb. 12	04 02 19	51.5	131.5	c	4.2	Northwest of Vancouver Island
633	Feb. 16	14 14 50	49.6	125.6	c	2.3	Northwest of Alberni
634	Feb. 24	10 00 50	47 52	123 10	b	—	Olympic Mtns.
635	Feb. 27	20 55 00	51.4	125.3	c	3.5	Head of Knight Inlet
636	Mar. 3	10 05 22	48 32	124 35	b	1.9	West of Port Renfrew
637	Mar. 3	12 21 55	48.3	121.9	c	1.9	Northeast of Everett Washington
638	Mar. 6	08 39 41	50 32	124 32	a	2.8	North of Toba Inlet
639	Mar. 11	22 42 51	48 15	123 36	b	1.7	Depth charge?
640	Mar. 14	01 55 14	49 43	123 39	a	2.3	Near Sechelt
641	Mar. 20	14 42 16	48.7	127.3	c	3.1	Off west coast Vancouver Island
642	Mar. 24	22 40 27	49 12	122 58	b	2.2	Southeast of Vancouver—blast in Fraser River?
643	Mar. 26	06 55 51	48 06	122 00	a	3.7	Northeast of Everett Washington
644	Mar. 27	00 05 13	49 00	123 20	a	1.8	Strait of Georgia
645	Apr. 7	23 45 56	49 00	122 08	a	—	Sumas area
646	Apr. 11	07 35 28	49 00	125 30	b	—	Barkley Sound
647	Apr. 22	06 29 46	46.8	121.9	c	—	Puget Sound area. Felt at Longmire, Washington
648	Apr. 25	08 10 06	51.0	126.6	c	—	Head of Seymour Inlet
649	Apr. 26	00 13 12	48 51	122 59	a	3	Bellingham Washington
650	May 3	21 24 26	48.2	123.2	b	1.9	Strait of Juan de Fuca
651	May 4	10 06 28	49.4	130.7	c	2.3	Off west coast Vancouver Island
652	May 6	12 52 22	46.7	130.9	c	—	Off coast of Washington
653	May 6	22 46 08	49 21	123 46	a	1.5	Strait of Georgia
654	May 13	19 49 34	48 13	123 37	a	2.1	Strait of Juan de Fuca
655	May 16	03 01 27	47.8	125.3	c	3	Off coast of Washington
656	May 20	22 59 53	47 53	121 58	a	2	Puget Sound
657	June 1	08 12 04	49.1	125.8	c	1	Clayoquot Sound
658	June 3	08 41 36	46.5	125.5	c	1	Off coast of Washington
659	June 3	20 21 09	49 17	123 44	a	—	Strait of Georgia
660	June 3	21 31 17	49 24	123 43	a	—	Strait of Georgia
661	June 3	21 43 16	49 31	123 43	a	—	Strait of Georgia
662	June 3	22 39 42	49 26	124 06	a	—	Strait of Georgia
663	June 6	15 23 36	48 50	123 39	a	—	Southern Vancouver Island
664	June 18	15 15 30	48.5	123.7	c	1	Southern Vancouver Island
665	June 29	13 06 40	48 23	124 45	b	2	Strait of Juan de Fuca
666	July 4	15 05 52	51.1	125.8	c	3	Head of Knight Inlet
667	July 5	07 52 10	48 43	123 33	a	3	Southern Vancouver Island
668	July 5	15 15 00	—	—	—	—	300 km off Oregon (USCGS)
669	July 14	23 36 17	—	—	—	—	60 km from Alberni
670	July 15	04 45 01	48.9	129.2	b	3	Off west coast of Vancouver Island
671	July 15	04 46 58	48.6	128.4	a	3	Off west coast of Vancouver Island
672	July 17	02 23 12	—	—	—	—	76 km from Alberni
673	July 17	04 44 24	—	—	—	—	95 km from Victoria
674	July 17	04 23 08	—	—	—	—	76 km from Horseshoe Bay
675	July 19	19 32 18	—	—	—	—	28 km from Victoria
676	July 21	09 52 35	—	—	—	—	Off coast of Oregon?
677	July 22	06 51 19	48 02	123 48	b	2	Olympic Mtns.
678	July 22	17 33 25	48.6	121.8	b	3	Mount Baker area

TABLE I—*Continued*

Map No.	Date	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
				1955			
679	July 23	19 02 34	47°.7	123°.3	c	3	Olympic Mtns.
680	July 24	02 44 33	—	—	—	—	32 km from Victoria
681	July 28	18 45 32	49¾	115	d	—	Northwest of Coleman
682	July 28	21 45 18	—	—	—	—	130 km from Victoria
683	July 28	22 45 19	—	—	—	—	190 km from Horseshoe Bay
684	July 29	13 35 12	48.3	122.9	c	3	Gulf Islands
685	Aug. 4	20 56 45	—	—	—	1.5	63 km from Victoria
686	Aug. 7	17 55 41	48 49	128 47	a	3.7	Off west coast of Vancouver Island
687	Aug. 10	22 34 20	48 37	123 55	a	2.2	Strait of Juan de Fuca
688	Aug. 11	06 40 33	47.8	122.0	c	1.5	Southeast of Everett Washington
689	Aug. 15	01 56 32	—	—	—	1	Coleman area
690	Aug. 16	18 49 19	—	—	—	1	Banff area
691	Aug. 20	01 28 55	49 16	123 39	a	1.5	Strait of Georgia
692	Aug. 21	12 34 09	44½	120	d	3	Oregon
693	Aug. 21	22 11 58	—	—	—	3	About 518 km N.E. of Victoria
694	Aug. 22	16 57 04	—	—	—	—	About 62 km N.E. of Horseshoe Bay
695	Aug. 23	05 35 37	49½	122	d	1	Northeast of Stave Lake
696	Aug. 25	04 43 36	48¾	122	c	2	Mount Baker region
697	Aug. 27	19 53 36	48.4	123.8	c	1	Southern Vancouver Island
698	Aug. 29	16 12 16	—	—	—	2.3	Off Washington coast
699	Aug. 31	20 30 59	—	—	—	2	Banff area, 180 km
700	Aug. 31	23 30 06	49.0	122.1	c	2.7	Sumas area
701	Sept. 6	11 02 14	49.7	123.5	c	—	Between Howe Sound and Sechelt
702	Sept. 6	11 12 47	49.7	123.5	c	—	Between Howe Sound and Sechelt
703	Sept. 8	07 29 58	—	—	—	—	25 km from Alberni
704	Sept. 9	17 58 46	49.2	124 00	a	2.8	Strait of Georgia (Nanaimo)
705	Sept. 11	00 52 51	48 26	124 36	a	3	Strait of Georgia
706	Sept. 12	15 09 03	48 29	124 33	b	2	Off Port Renfrew
707	Sept. 14	13 03 03	47.7	121.8	c	2½	Puget Sound
708	Sept. 14	18 30 27	—	—	—	1.5	
709	Sept. 15	09 37 35	48.4	123.6	c	1.1	Southern Vancouver Island
710	Sept. 22	08 12 25	—	—	—	2.0	100 km from Victoria
711	Sept. 24	01 13 36	49 03	123 45	b	1.3	Sechelt area
712	Sept. 25	02 29 25	49.5	122.7	c	1	N.E. of Vancouver
713	Sept. 28	01 09 06	49.5	126.3	c	2.8	Clayoquot Sound
714	Sept. 29	19 12 37	—	—	—	2	76 km from Alberni
715	Sept. 30	04 02 16	49.4	124.2	c	1.5	Strait of Georgia
716	Oct. 1	20 04 53	—	—	—	2.4	60 km from Alberni
717	Oct. 3	11 24 08	49.0	127.0	c	3.5	Off west coast of B.C.
718	Oct. 5	10 24 44	—	—	—	2	110 km from Victoria
719	Oct. 7	12 57 05	—	—	—	3	Felt in Hungry Horse
720	Oct. 9	14 21 30	48 43	123 55	a	2.5	Southern Vancouver Island
721	Oct. 11	22 21 26	—	—	—	2.4	60 km from Alberni
722	Oct. 14	09 43 43	48.6	125.0	c	1	Barkley Sound area
723	Oct. 14	15 37 42	—	—	—	2.5	75 km from Banff
724	Oct. 15	19 41 40	—	—	—	1	32 km from Horseshoe Bay
725	Oct. 16	11 12 36	48.5	124.9	c	2.0	Juan de Fuca
726	Oct. 17	21 02 52	—	—	—	—	85 km from Horseshoe Bay
727	Oct. 19	04 25 13	49 52	125 30	b	2.0	Central Vancouver Island
728	Oct. 20	19 11 53	49.8	124.6	c	1	Strait of Georgia
729	Oct. 20	21 59 10	48.4	123.2	c	1.5	Near Victoria
730	Oct. 21	09 55 27	—	—	c	3	Below U.S. border
731	Oct. 21	15 16 24	48 59	124 44	a	1.7	Barkley Sound
732	Oct. 23	05 39 46	48 54	124 32	a	1.8	Southern Vancouver Island
733	Oct. 27	18 09 37	48 09	124 26	b	3.0	Olympic Mtns.
734	Oct. 31	03 52 08	—	—	—	2.3	140 km from Victoria
735	Oct. 31	22 08 56	—	—	—	2	45 km from Alberni

TABLE I—*Continued*

Map No.	Date	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
				1955			
736	Nov. 3	01 40 31	48°06′	121°45′	b	—	Northeast of Everett Washington, U.S.C.G.S.
737	Nov. 4	20 53 05	—	—	—	2.0	60 km N.E. of Victoria
738	Nov. 5	13 50 11	—	—	—	1.2	40 km from Horseshoe Bay
739	Nov. 6	21 09 04	49 25	123 39	a	1.4	Sechelt area
740	Nov. 6	22 47 13	48.0	124.1	c	1	Olympic Mtns. area
741	Nov. 7	01 24 15	49.0	122.6	b	1	Boundary Bay area
742	Nov. 8	23 13 31	49 32	123 17	b	1.5	Howe Sound. Depth, 10 km
743	Nov. 9	09 16 33	49 04	122 58	a	1.0	Strait of Georgia
744	Nov. 9	10 58 25	49 07	123 24	a	1.8	Boundary Bay area
745	Nov. 9	11 46 33	49 04	122 58	a	1	Boundary Bay area
746	Nov. 9	17 46 33	—	—	—	1.7	50 km from Horseshoe Bay
747	Nov. 9	23 00 08	—	—	—	1.8	50 km from Horseshoe Bay
748	Nov. 10	12 41 24	48 52	123 00	a	1.7	Strait of Georgia
749	Nov. 11	03 30 02	49.6	121.2	c	2.5	Near Hope B.C.
750	Nov. 11	03 30 34	—	—	—	3.0	210 km from Alberni
751	Nov. 11	03 58 57	—	—	—	1.4	50 km from Horseshoe Bay
752	Nov. 17	23 39 21.2	49 22	123 02	a	2.0	Due east of Horseshoe Bay. Depth, 18 km
753	Nov. 21	22 19 52	48 30	122 25	a	3.0	Puget Sound. Depth, 18 km
754	Nov. 25	21 06 49	48.3	123.8	c	2.4	Strait of Juan de Fuca.
755	Dec. 1	no time	—	—	—	1.6	About 40 km from Banff
756	Dec. 2	11 58 41	47.4	125.4	c	2.7	Off coast of Washington
757	Dec. 2	15 52 11	49.2	122.9	c	1.8	Boundary Bay area
758	Dec. 4	00 22 56	49.6	123.2	a	0.7	Howe Sound–Blast?
759	Dec. 6	03 21 51	50.3	123.6	c	3.6	Head of Jervis Inlet
760	Dec. 9	14 01 28	50.1	123.6	b	1.5	Head of Jervis Inlet
761	Dec. 12	22 39 34	48 39	124 55	b	2.0	Nitinat Lake area
762	Dec. 15	06 52 05	47.6	123.8	b	3.0	Olympic Mtns.
763	Dec. 17	22 45 16	49 24	123 25	a	1.9	Howe Sound
764	Dec. 19	10 45 17	48.5	116.3	b	2.1	Idaho-Montana border
765	Dec. 21	03 50 31	49.4	115.5	c		Kootenay area
766	Dec. 22	19 16 24	49 28	123 05	a	1.0	Southeast of Horseshoe Bay
767	Dec. 24	01 26 14	47.9	122.9	c	2.3	Puget Sound
768	Dec. 24	18 17 25	47.7	124.8	c	2.5	Off Washington coast
769	Dec. 30	18 51 31	48.6	122.5	b	2.8	Puget Sound
770	Dec. 30	19 45 24	48 39	123 44	a	1.5	Southern Vancouver Island
				1956			
771	Jan. 5	22 14 04	49.5	123.4	a	1.9	Howe Sound
772	Jan. 7	04 28 38	47 34	122 26	a	3.5	Southwest of Seattle. M=4 in Seattle. U.S.C.G.S.
773	Jan. 7	16 41 04	65½	133½			Yukon Canada. U.S.C.G.S.
774	Jan. 15	13 49 39					Queen Charlottes. U.S.C.G.S.
775	Jan. 19	18 19 54	49 32	123 07	a	1.8	Sechelt area
776	Jan. 20	00 42 40	49.9	124.6	c	1–	Jervis Inlet, Powell River
777	Jan. 21	10 14 25	48 16	123 09	b	2.4	Strait of Juan de Fuca
778	Jan. 22	00 42 39	49.5	123.3	b	2.3	Howe Sound
779	Jan. 25	10 55 31	47.5	123.8	c	2.0	Olympic Mtns.
780	Jan. 26	02 47 44	49.4	124.0	c	2.0	Strait of Georgia
781	Feb. 6	11 35 57	48 20	124 12	a	2.5	Olympic Mtns.
782	Feb. 7	06 49 42	50.1	130.4	c	3.6	Off west coast of Vancouver Island
783	Feb. 7	16 59 25	—	—	—	4	Queen Charlotte Islands
784	Feb. 9	00 57 14	48 42	123 10	a	3.1	Puget Sound area. Felt generally in Victoria mainland. U.S.C.G.S.
785	Feb. 9	01 01 19	48 38	123 03	a	2.1	Aftershock of above
786	Feb. 9	01 18 58	48 38	123 03	a	2.4	Aftershock of above
787	Feb. 9	01 28 39	48 38	123 03	a	2.6	Aftershock of above
788	Feb. 9	01 36 14	48 38	123 03	b	1.6	Aftershock of above

TABLE I—*Continued*

Map No.	Date	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
				1956			
789	Feb. 9	01 30 30	48°38′	123°03′	a	1.8	Aftershock of above
790	Feb. 9	01 38 57	48.0	122.9	c	1.9	Olympic Mtns.
791	Feb. 9	08 31 26	52.4	130.3	c	4	Queen Charlotte Islands
792	Feb. 10	23 04 32	48.7	121.6	c	2.0	Mount Baker region
793	Feb. 14	13 50 24	48 14	122 50	b	2.3	Gulf Islands
794	Feb. 14	23 07 06	48.5	122.0	c	2.5	Puget Sound
795	Feb. 19	02 18 09	51.3	130.6	b	6.8	Queen Charlotte Islands. Felt at Capt St. James and McInnes Island
796	Feb. 19	02 39 41	52.1	130.0	b	4.2	Queen Charlotte Islands
797	Feb. 19	21 35 26	49.7	123.0	c	1.5	Howe Sound B.C.
798	Feb. 22	19 59 31	49.0	122.8	c	1.6	Boundary Bay
799	Feb. 23	06 29 30	49½	122½	c	2.6	Near Stave Lake, B.C. Felt at Haney, B.C.
800	Feb. 23	09 35 21	49½	122½	c	1.6	Aftershock
801	Feb. 23	20 21 55	49.0	120.4	c	2.9	South of Princeton, B.C.
802	Feb. 28	16 36 28	49 34	123 18	a	1.5	Sechelt
803	Feb. 29	17 29 34	48.9	125.5	b	2.9	Barkley Sound area
804	Mar. 7	10 25 55	49.2	122.8	c	1.3	Boundary Bay area
805	Mar. 8	00 42 47	49 37	123 24	a	1.9	Howe Sound
806	Mar. 8	17 32 12	48 43	123 04	b	1.8	Gulf Islands
807	Mar. 23	20 38 26	49.9	123.3	b	1.7	Jervis Inlet
808	Mar. 27	08 26 38	49 10	122 56	a	2.0	Boundary Bay area
809	Mar. 27	11 03 32	49.2	122.8	c	2.0	Boundary Bay area
810	Mar. 27	15 31 24	49 11	123 01	a	2.0	Boundary Bay area. Depth, 18 km
811	Mar. 27	15 34 33	49 12	122 57	a	2.0	Boundary Bay area. Depth, 18 km
812	Mar. 27	15 35 03	49 10	122 56	a	2.4	Boundary Bay area. Depth, 18 km. Felt in lower Fraser Valley
813	Mar. 27	18 14 38	49.6	123.2	b	1.4	Howe Sound, B.C.
814	Mar. 28	03 22 26.5	49.1	123.0	c	1.7	Boundary Bay
815	Mar. 31	05 43 37	49.1	122.9	c		Boundary Bay
816	Apr. 6	00 34 08	48.1	121.9	c	2.6	Puget Sound
817	Apr. 8	22 28 13	48 32	123 04	b	3.3	Gulf Islands. U.S.C.G.S.
818	Apr. 11	22 24 45	—	—	—	2.2	30 km from Banff
819	Apr. 11	23 04 53	49.3	123.4	c	2.0	Strait of Georgia
820	Apr. 12	13 06 02	—	—	—	1.7	36 km from Alberni
821	Apr. 12	15 10 10	49 11	123 24	a	2.3	South of Horseshoe Bay by 21 km
822	Apr. 16	21 52 32	—	—	—	2.3	45 km from Banff
823	Apr. 16	22 34 11	—	—	—	—	63 km from Alberni
824	Apr. 18	18 46 58	—	—	—	2.6	52 km from Banff
825	Apr. 21	12 25 31	—	—	—	—	44 km from Victoria
826	Apr. 22	19 15 49	49.6	123.2	c	1.1	Howe Sound
827	Apr. 22	19 56 44	—	—	—	1.6	140 km from Victoria
828	Apr. 24	16 51 24	49.8	123.0	c	2.2	North of Howe Sound
829	Apr. 26	16 48 23	48.5	122.2	b	2.2	Puget Sound area. Felt at Seattle and Renton
830	Apr. 26	21 03 04	—	—	—	1.7	40 km from Horseshoe Bay
831	Apr. 27	16 16 41	49 18	124 00	a	3.0	Strait of Georgia
832	Apr. 28	04 08 52	49 11	123 58	a	1.2	Southern Vancouver Island
833	Apr. 30	00 58 26	48 15	123 36	a	1.7	Strait of Juan de Fuca
834	May 1	17 12 41	—	—	—	—	335 km from Alberni
835	May 8	15 45 43	49 15	123 39	a	2.8	Strait of Georgia
836	May 10	17 08 20	49.6	123.6	c	1.2	North of Howe Sound
837	May 14	17 04 24	50.6	117.5	c	3.8	Near Ferguson, B.C.
838	May 17	17 12 13	50.5	124.2	b	2.5	Head of Toba Inlet
839	May 17	17 06 17	49 21	124 01	a	1.8	Strait of Georgia
840	May 17	17 06 55	49 21	124 01	a	1.8	Strait of Georgia
841	May 17	17 04 18	50.4	124.0	c	2.4	Head of Jervis Inlet
842	May 18	03 41 52	45	124	c	3.7	Off coast of Oregon
843	May 23	06 28 43	—	—	—	2.2	72 km from Alberni

TABLE I—*Continued*

Map No.	Date	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
			1956				
844	June 1	02 40 19	50°7	125°8	c	2.5	South of Knight Inlet
845	June 4	22 33 22	48.6	122.5	b	2.0	Puget Sound area
846	June 18	18 22 50.7	—	—	—	2.1	93 km from Victoria
847	June 20	19 54 29	—	—	—	1.1	27 km from Victoria
848	June 24	07 37 42	48.2	121.5	c	2.0	Puget Sound area
849	June 28	22 58 48	48.8	129.3	b	6¼ to 6½	Off coast of Vancouver Island
850	June 28	23 16 50	49	129½	b	3.8	Off coast of Vancouver Island
851	June 28	23 30 17	49	129½	b	4.0	Off coast of Vancouver Island
852	June 29	09 12 21	49	129½	c	3.1	Off coast of Vancouver Island
853	June 29	09 44 32	49	129½	c	3.1	Off coast of Vancouver Island
854	July 15	06 01 05	48 25	122 49	b	2.4	Gulf Islands
855	July 18	16 26 54	49 22	124 00	a	2.4	Strait of Georgia
856	July 18	19 07 17	—	—	—	2.4	92 km N.W. of Alberni
857	July 20	13 39 34	47 56	122 15	b	2.5	Puget Sound, Washington
858	July 22	20 52 21	47 45	122 27	b	1.1	Puget Sound, Washington
859	July 25	02 13 07	49 02	122 17	b	2.7	Sumas area
860	Aug. 1	01 48 20	66	133½	—	—	Yukon Canada. U.S.C.G.S.
861	Aug. 8	03 18 13	50.2	123.2	c	2.0	Head of Howe Sound
862	Aug. 12	21 22 30.0	47.9	127.5	b	3.4	Off coast of Washington
863	Aug. 13	13 11 47	—	—	—	2.0	88 km from Alberni
864	Aug. 14	23 27 23	48 37	121 46	a	2.2	Mount Baker region
865	Aug. 15	23 21 10	48 25	123 32	a	1.6	Victoria, B.C.
866	Aug. 16	03 12 19	48.5	123.5	c	1.5	Victoria, B.C.
867	Aug. 17	09 15 06	—	—	—	—	200 miles off coast of Oregon. U.S.C.G.S.
868	Aug. 17	10 54 34	48.0	124.7	c	2.0	Washington coast
869	Aug. 29	04 42 55	48.6	122.6	b	1.9	Puget Sound
870	Sept. 1	19 34 06	45.0	128.0	b	4.0	300 km off coast of Oregon
871	Sept. 4	10 17 31	49½	126½	c	2.6	Clayoquot Sound
872	Sept. 8	18 17 29	50.0	125.9	c	2.1	Central Vancouver Island
873	Sept. 12	22 44 44	49 21	122 43	b	2.4	
874	Sept. 16	18 56 18	48.9	128.4	b	3.4	Off coast of Vancouver Island
875	Sept. 17	01 07 30	45.0	128	c	4.4	Southern Oregon, or off Oregon Coast
876	Sept. 17	20 29 45	—	—	—	2.2	62 km from Alberni
877	Sept. 18	11 12 45	—	—	—	1.3	24 km from Victoria
878	Oct. 2	09 25 42	49 22	123 17	a	1.4	Horseshoe Bay
879	Oct. 3	00 45 50	48 22	122 30	a	2.2	Puget Sound
880	Oct. 4	07 30 27	50.8	119.7	c	3.3	Adams Lake
881	Oct. 8	01 49 36	48.4	126.6	b	3.0	Off coast of Vancouver Island
882	Oct. 9	23 42 05	—	—	—	1.8	35 km from Banff
883	Oct. 11	21 02 37	50.2	123.7	b	2.7	Jervis Inlet
884	Oct. 12	15 32 10	47.5	214.1	c	2.4	Olympic Mtns.
885	Oct. 14	09 28 12	—	—	—	1.6	Due south of Victoria
886	Oct. 14	12 12 40	—	—	—	2.4	60 km from Alberni
887	Oct. 18	07 15 43	—	—	c	3.7	Off Oregon coast
888	Oct. 20	13 27 55	48.4	122.8	c	2.2	Puget Sound
889	Oct. 23	11 23 34	47.6	124.7	c	2.4	Off Washington coast
890	Oct. 23	18 11 23	48.7	121.5	c	2.1	Mount Baker
891	Oct. 27	03 57 50	49.0	122.3	b	2.4	Sumas area
892	Oct. 27	19 34 30	49.9	125.7	c	2.3	Central Vancouver Island
893	Oct. 30	21 42 27	48.8	120.5	c	2.7	Southwest of Princeton
894	Oct. 31	22 24 12	48 16	123 38	a	1.9	Strait of Juan de Fuca
895	Nov. 2	22 29 49	—	—	—	1.8	33 km from Banff
896	Nov. 3	05 26 02	61	139	—	—	Southern Yukon. U.S.C.G.S. Felt at Haines Junction, Destruction Bay, Quill Creek
897	Nov. 3	18 57 23	48 16	123 37	a	2.0	Strait of Juan de Fuca
898	Nov. 3	19 01 40	48.3	123.7	a	2.0	Depth charge
899	Nov. 4	04 44 01	48.0	124.3	b	2.3	Olympic Mtns.

TABLE I—*Continued*

Map No.	Date	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
			1956				
900	Nov. 4	21 40 55	61°	139°	—	—	Southern Yukon. U.S.C.G.S.
901	Nov. 4	21 52 33	48.9	124.3	c	1.8	Southern Vancouver Island
902	Nov. 8	23 13 03	47.8	122.0	c	2.5	Puget Sound
903	Nov. 10	09 08 30.8	48.5	123.0	c	2.0	Gulf Islands
904	Nov. 10	20 24 33	—	—	—	1.0	14 km from Banff
905	Nov. 15	12 40 05	—	—	—	1.9	90 km from Alberni
906	Nov. 15	23 23 36	48.5	123.9	c	2.1	Southern Vancouver Island
907	Nov. 16	22 38 22	—	—	—	1.4	31 km from Banff
908	Nov. 15	23 22 42	—	—	—	1.5	31 km from Banff
909	Nov. 17	17 25 46	48.2	124.5	b	2.1	Olympic Mtns.
910	Nov. 17	20 27 15	54½	134	—	6½	Queen Charlotte Islands. U.S.C.G.S. Felt: Prince Rupert, Ketchikan and Queen Charlotte Islands
911	Nov. 18	14 42 53	48.2	121.6	b	2.4	Puget Sound area
912	Nov. 18	23 57 02	47.8	122.2	c	2.2	Puget Sound area
913	Nov. 21	22 02 52.3	49.1	122.3	b	2.1	Mission, B.C.
914	Nov. 22	00 23 44	48 54	122 54	a	2.8	Strait of Georgia
915	Nov. 22	22 55 55	50.6	124.8	c	1.6	Bute Inlet
916	Nov. 25	23 59 49	47.4	122.5	b	2.5	Puget Sound
917	Nov. 30	16 42 03	49.7	129.4	—	—	Off coast of Vancouver Island. U.S.C.G.S.
918	Dec. 1	08 26 12	48.1	124.5	b	2.5	Olympic Mtns.
919	Dec. 5	23 03 45	49.4	122.7	b	2.0	Southeast of Horseshoe Bay
920	Dec. 7	12 46 47	50.3	124.1	c	2.3	Toba Inlet
921	Dec. 7	23 43 03	48 20	123 56	a	2.6	Strait of Juan de Fuca
922	Dec. 10	16 52 07	—	—	—	2.2	85 km from Alberni
923	Dec. 11	07 39 45	50.9	124.4	c	2.9	
924	Dec. 13	13 43 52	48 46	124 45	b	2.5	Nitinat Lake region
925	Dec. 15	09 37 42	47.3	124.1	b	2.5	Olympic Mtns. Felt at Kelso and Longview U.S.C.G.S.
926	Dec. 16	19 46 56	48 59	125 36	b	2.8	Barkley Sound
927	Dec. 21	08 59 03	51.8	129.2	b	6½	South of Queen Charlotte Islands
928	Dec. 21	20 51 52	51.8	129.2	c	4.1	Aftershock
929	Dec. 22	03 28 50	50.3	129.9	b	3.8	Aftershock
930	Dec. 26	15 10 55	47.4	124.4	c	2.5	Olympic Mtns., off west coast
931	Dec. 26	20 54 31	49 06	122 15	a	2.4	Sumas region
932	Dec. 27	23 37 15.3	49.9	124.5	c	2.1	Powell River
933	Dec. 31	13 11 14	—	—	—	1.8	34 km from Alberni
934	Dec. 31	21 17 41	—	—	—	1.9	64 km from Alberni
			1957				
935	Jan. 2	06 29 00	48.8	126.0	b	2.5	Off west coast of Vancouver Island
936	Jan. 2	13 47 29	49 36	123 39	a	2.0	Sechelt area
937	Jan. 2	21 39 01	49.7	123.8	c	2.0	Jervis Inlet
938	Jan. 3	06 06 26	49 38	123 43	b	2.4	Jervis Inlet
939	Jan. 5	13 58 20	49 34	123 36	a	2.2	Jervis Inlet
940	Jan. 6	11 06 00	—	—	—	—	45 km from Alberni
941	Jan. 8	13 46 12	47.7	123.3	b	2.6	Olympic Mtns.
942	Jan. 9	22 33 42	—	—	—	1.9	93 km from Victoria
943	Jan. 10	01 59 33.6	48 41	122 52	a		Gulf Islands
944	Jan. 11	12 38 20	48.8	125.5	c	1.1	Barkley Sound
945	Jan. 14	03 51 20	48.1	124.6	c	2.4	Olympic Mtns.
946	Jan. 21	08 22 28	47.4	122.9	b	2.4	Puget Sound
947	Jan. 26	01 16 16	48 20	122 26	a	—	Gulf Islands. Was felt. U.S.C.G.S.
948	Jan. 27	06 33 05	48.5	121.7	c	2.1	Puget Sound
949	Feb. 1	09 38 16	49 14	124 00	a	2.0	Strait of Georgia
950	Feb. 3	10 32 03	—	—	—	—	140 km from Alberni
951	Feb. 5	19 22 59	48 37	123 18	a+	2.3	Gulf of Georgia

TABLE I—*Continued*

Map No.	Date	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
			1957				
952	Feb. 7	18 13 57	49°37′	132°8′	b	4.0	Off west coast of Vancouver Island
953	Feb. 8	17 16 00	—	—	—	1.6	82 km from Victoria
954	Feb. 11	17 04 57	47 31	121 46	b	4.0	Puget Sound
955	Feb. 12	13 41 16	—	—	—	2.9	135 km from Alberni
956	Feb. 21	18 18 53	49.7	124.6	c	2.4	Strait of Georgia
957	Feb. 23	12 16 49	48.7	128.6	b	4.0	Off west coast of Vancouver Island
958	Feb. 27	12 26 16	49.3	127.8	c	2.8	Off west coast of Vancouver Island
959	Mar. 2	09 33 03	48.4	123.6	c	1	Southern Vancouver Island
960	Mar. 4	18 49 42	—	—	—	2.3	180 km from Horseshoe Bay
961	Mar. 6	22 40 30	—	—	—	1.4	35 km from Banff
962	Mar. 7	08 03 34	50.95	125.0	c	2.6	Head of Bute Inlet
963	Mar. 7	23 31 06	49 15	124 00	a	2.7	Strait of Georgia
964	Mar. 13	21 04 18	49.2	125.2	c	2.6	Central Vancouver Island
965	Mar. 13	23 08 08	48.2	123.5	a	2.5	Strait of Juan de Fuca
966	Mar. 14	11 15 54	48 51	122 28	b	3.1	Puget Sound
967	Mar. 14	15 31 32	47.7	121.7	c	2.8	42 km from Seattle
968	Mar. 16	00 37 04	49 48	124.21	a	3.7	Near Powell River, B.C.
969	Mar. 16	01 28 54	50.4	128.1	c	3.5	Quatsino Sound, Vancouver Island
970	Mar. 20	20 16 55	—	—	—	3.0	400 km from Banff
971	Mar. 22	01 49 33.5	49 28	124 02	a	2.3	Strait of Georgia
972	Mar. 22	01 58 02	49 24	123 53	b	2.1	Strait of Georgia
973	Mar. 22	02 23 43	49 19	123 50	b	2.1	Strait of Georgia
974	Mar. 22	03 43 41	49 50	125 22	a	2.6	Central Vancouver Island
975	Mar. 23	21 39 09	—	—	—	1.0	36 km from Banff
976	Mar. 24	00 33 00	49.0	122.3	c	2.1	Sumas area
977	Mar. 24	08 22 23	50.0	129.7	b	6	Near coast of Vancouver Island
978	Mar. 24	12 04 59	50.3	131	c	4.2	Off Vancouver Island
979	Mar. 25	08 07 34	48.3	123.7	c	1.2	Southern Vancouver Island
980	Mar. 26	19 19 37	—	—	—	3.8	Impossible to locate; possibly off west coast
981	Mar. 28	04 45 24	48 18	123 43	a	2.3	Strait of Juan de Fuca
982	Mar. 30	02 13 08	49.3	121.5	c	2.2	Southwest of Hope, B.C.
983	Mar. 30	23 14 40	—	—	—	1.5	72 km from Victoria
984	Apr. 2	21 46 29	48.9	122.2	c	2.0	Puget Sound
985	Apr. 6	11 18 31	48 36	124 52	a	1.9	Nitinat Lake region
986	Apr. 9	12 35 28	48.6	121.6	c	1.8	Puget Sound
987	Apr. 9	12 58 06	54.1	120.0	c	3.4	British Columbia–Alberta border
988	Apr. 9	22 16 31	49 08	123 09	a	1.5	Mouth of Fraser River
989	Apr. 11	03 44 25	—	—	—	2.0	192 km from Banff
990	Apr. 13	02 36 40	48.0	128.0	a	3.6	Off coast of Vancouver Island
991	Apr. 13	03 44 07	48.3	128.0	a	4.0	As above
992	May 18	21 53 02	—	—	—	2.2	190 km from Banff
993	Apr. 22	12 12 21	47.9	122.3	c	1.7	Puget Sound
994	Apr. 24	22 56 10	48 58	122 10	a	2.7	Sumas region
995	Apr. 25	20 06 08	48 13	123 40	a	2.4	Strait of Juan de Fuca
996	May 4	21 09 29	47.3	122.4	a	3.4	Olympic Mtns. Felt at Tacoma, Aberdeen, Olympic. No damage
997	May 5	21 44 28	48.2	124.6	b	2.3	Olympic Mtns.
998	May 6	18 35 30	48 41	123 27	a	2.2	Southern Vancouver Island
999	May 10	17 04 09	48.9	125.1	c	1.8	Barkley Sound
1000	May 11	00 26 21	49.2	115.8	c	3.2	Southern British Columbia
1001	May 11	04 34 51	—	—	—	2.7	250 km from Banff
1002	May 12	07 32 36	47 56	122 31	b	2.5	Northwest of Seattle
1003	May 13	21 49 50	—	—	—	1.3	35 km from Banff
1004	May 14	10 43 31	47.0	115.5	c	3.4	Montana
1005	May 14	20 32 59	—	—	—	1	34 km from Banff
1006	May 15	22 05 20	49 06	122 25	a	2.1	Sumas region
1007	May 16	09 29 26	48.7	126.3	b	2.8	Off coast of Vancouver Island

TABLE I—*Continued*

Map No.	Date	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
			1957				
1008	May 16	16 54 08	48°8	122°7	c	2.4	Mount Baker region
1009	May 19	19 48 23	52.1	127.7	c	3.1	Dean Channel
1010	May 21	07 45 26	47 46	122 00	b	2.6	Northeast of Seattle; Puget Sound
1011	May 29	09 35 03	47 46	123.3	c	2.9	Olympic Mtns.
1012	May 30	00 50 40	48.6	122.6	c	1.6	Puget Sound
1013	June 1	05 41 45	—	—	—	2.5	215 km from Horseshoe Bay
1014	June 1	10 48 04	50.5	124.3	c	2.2	Head of Toba Inlet
1015	June 30	11 46 53	48.9	126.0	c	2.5	Off west coast of Vancouver Island
1016	July 1	06 41 46	47.7	121.9	c	2.5	Puget Sound
1017	July 2	19 22 44	47.8	121.4	c	2.4	Puget Sound
1018	July 2	19 22 45	47.7	121.6	c	2.2	Puget Sound
1019	July 3	00 46 08	—	—	—	1.5	67 km from Victoria
1020	July 6	09 53 12	—	—	—	2.2	128 km from Alberni
1021	July 7	11 27 20	—	—	—	2.0	48 km from Alberni
1022	July 8	05 24 48	47 42	121 50	b	2.3	Puget Sound
1023	July 12	16 11 27	—	—	—	2.0	106 km from Horseshoe Bay
1024	July 13	08 48 13	—	—	—	2.0	119 km from Victoria
1025	July 13	20 30 57	—	—	—	1.7	68 km from Victoria
1026	July 15	23 25 43	—	—	—	1.3	38 km from Horseshoe Bay
1027	July 16	02 42 04	—	—	—	1.8	29 km from Alberni
1028	July 18	23 56 15	—	—	—	2.2	90 km from Horseshoe Bay
1029	July 25	04 50 43	—	—	—	3.7	564 km from Victoria
1030	July 25	13 14 33	—	—	—	2.5	149 km from Horseshoe Bay
1031	July 27	08 37 56	48.7	121.9	c	2.2	Mount Baker region
1032	July 27	13 43 06	48 53	122 21	a	1.9	Puget Sound
1033	July 27	19 05 05	—	—	—	1.0	24 km from Lillooet
1034	July 27	20 28 26	47 00	124 00	a	2.4	South of Jervis Inlet
1035	Aug. 5	12 05 43	44.5	128.0	a	3.9	Off coast of Oregon
1036	Aug. 8	03 20 05	—	—	—	1.6	216 km from Horseshoe Bay
1037	Aug. 10	21 08 15	—	—	—	1.7	60 km from Banff
1038	Aug. 15	13 13 16	48.5	122.5	c	1.2	Puget Sound
1039	Aug. 16	10 20 44	49 07	123 58	a	2.6	Southern Vancouver Island
1040	Aug. 18	02 34 10	—	—	—	1	25 km from Lillooet
1041	Aug. 19	20 09 52	—	—	—	1.1	10 km from Banff
1042	Aug. 20	11 23 59	48 17	123 16	a	2.7	Strait of Juan de Fuca. Depth, 18 km
1043	Aug. 21	03 46 15	48 42	123 56	a	2.0	Southern Vancouver Island
1044	Aug. 22	04 07 45	48.8	122.2	c	1.9	Puget Sound
1045	Aug. 22	12 51 50	49.3	128.2	a	3.5	Off west coast of Vancouver Island
1046	Aug. 25	03 30 00	—	—	—	1.9	67 km from Victoria
1047	Aug. 27	03 30 02	—	—	—	2.3	82 km from Horseshoe Bay
1048	Aug. 27	17 31 11	49 27	123 18	a	1.6	Near Vancouver, B.C.
1049	Aug. 27	22 39 52	—	—	—	1.9	35 km from Banff
1050	Aug. 30	01 53 26	48.8	122.6	c	1.7	Puget Sound
1051	Sept. 1	00 23 02	—	—	—	2.4	174 km from Horseshoe Bay
1052	Sept. 2	01 51 32	48 24	124 14	a	2.4	Strait of Juan de Fuca
1053	Sept. 5	01 36 04	47.7	121.5	c	2.6	Puget Sound
1054	Sept. 5	21 46 29	—	—	—	—	38 km from Banff
1055	Sept. 5	21 59 38	48 40	123 43	a	1.5	Cobble Hill blast?
1056	Sept. 6	12 33 40	49 10	123 57	a	2.8	Strait of Georgia
1057	Sept. 6	12 35 30	49.2	124.0	c	2.2	Aftershock
1058	Sept. 12	23 03 26	48 44	123 22	a	2.9	Gulf Islands
1059	Sept. 12	23 07 59	48.7	123.4	c	1.5	Gulf Islands
1060	Sept. 12	23 09 32	48 41	123 08	a	2.0	Gulf Islands. Depth, 18 km
1061	Sept. 13	00 54 53	—	—	—	2.0	114 km from Victoria
1062	Sept. 13	01 47 44	48 42	123 08	a	1.8	Gulf Islands. Depth, 18 km
1063	Sept. 13	14 29 19	48 43	123 01	b	2.2	Gulf Islands
1064	Sept. 14	02 54 53	48.7	125.1	a	2.1	Off west coast of Vancouver Island

TABLE I—*Continued*

Map No.	Date	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
			1958				
1065	Sept. 14	03 20 53	48°42′	123°57′	b	3.4	Gulf Islands
1066	Sept. 14	10 20 38	48 50	124 25	a	1.9	Southern Vancouver Island
1067	Sept. 17	04 57 25	48.3	124.1	c	1.2	Strait of Juan de Fuca
1068	Sept. 17	06 37 13	50.9	125.1	b	3.3	Head of Bute Inlet
1069	Sept. 17	12 43 55	50.2	124.7	c	1.9	Jervis Inlet
1070	Sept. 17	21 51 48	49.0	124.5	c	2.5	Southern Vancouver Island
1071	Sept. 17	22 40 56	—	—	—	2.2	93 km from Horseshoe Bay
1072	Sept. 19	06 20 53	48 7	123 3	c	1.8	Gulf Islands
1073	Sept. 21	01 06 37	49 15	123 58	a	1.9	Strait of Georgia
1074	Sept. 21	02 37 07	47.9	122.8	c	1.9	Olympic Mtns.
1075	Sept. 21	12 56 00	49 55	123 39	a	2.0	Strait of Georgia
1076	Sept. 21	23 22 42	48 38	123 04	a	1.8	Gulf Islands
1077	Sept. 24	11 12 11	48.2	124.4	c	2.3	Olympic Mtns.
1078	Sept. 24	18 36 30	47.9	124.3	a	2.5	Olympic Mtns.
1079	Sept. 26	16 42 23	48.2	125.0	a	2.5	Off coast of Washington
1080	Sept. 29	16 43 17	49 02	123 50	a	2.0	Strait of Georgia?
1081	Oct. 3	19 03 55	47.5	127.0	a	3.0	Off coast of Washington
1082	Oct. 4	19 34 09	50.4	130.0	b	3.7	Off northern Vancouver Island
1083	Oct. 19	18 08 59	48.4	128.3	b	3.5	Off west coast of Vancouver Island
1084	Oct. 20	22 04 16	48 41	123 12	a	1.9	Salt Spring Island. Possibly Cobble Hill blast
1085	Oct. 22	20 03 34	48 31	124 00	a	2.7	Strait of Juan de Fuca
1086	Oct. 22	20 05 24	48 20	124 08	a	2.5	Olympic Mtns.
1087	Oct. 23	06 42 07	48.5	125.1	c	2.2	Strait of Juan de Fuca
1088	Oct. 24	14 12 00	49 03	124 43	a	1.9	Central Vancouver Island
1089	Nov. 1	10 12 02	46.7	121.5	a	4.2	Near Mount Ranier
1090	Nov. 1	10 32 27	47.5	120.6	a	3.3	Northwestern Washington
1091	Nov. 1	11 05 33	46.4	122.3	c	3.2	Puget Sound
1092	Nov. 1	20 57 08	—	—	—	1	15 km from Victoria
1093	Nov. 1	21 23 16	48 13	123 38	a	2.4	Strait of Juan de Fuca
1094	Nov. 4	04 59 36	47.4	123.5	c	2.4	Olympic Mtns.
1095	Nov. 4	16 55 00	—	—	—	1	11 km from Horseshoe Bay
1096	Nov. 4	22 02 38	48 38	124 59	b	2.2	Strait of Juan de Fuca
1097	Nov. 5	06 52 03	48.5	122.4	c	1.9	Puget Sound
1098	Nov. 11	07 49 52	46½	112	b	4.3	Western Montana U.S.C.G.S.
1099	Nov. 13	20 11 40	48 41	123 40	a	1.4	Cobble Hill
1100	Nov. 14	03 54 34	48 56	123 22	a	1.6	Gulf Islands
1101	Nov. 15	18 06 53	48.3	123.8	c	2.4	Strait of Juan de Fuca
1102	Nov. 17	06 01 34	45.8	124.2	b	3.6	Off coast of Oregon
1103	Nov. 17	06 32 52	—	—	—	3.9	680 km from Victoria
1104	Nov. 25	09 17 50	47.4	123.5	c	2.5	Olympic Mtns.
1105	Nov. 25	19 34 36	48.1	125.0	a	2.7	Off coast of Washington
1106	Dec. 1	21 31 17	47.3	128	b	3.3	Off coast of Washington
1107	Dec. 1	22 51 59	47.7	128.4	b	3.5	Off coast of Washington
1108	Dec. 1	23 32 28	47.6	128.3	a	3.1	Off coast of Washington
1109	Dec. 1	00 21 51	47.5	128.3	b	3.2	Off coast of Washington
1110	Dec. 2	02 55 48	47.6	128.2	b	3.1	Off coast of Washington
1111	Dec. 2	13 44 24	—	—	—	2.9	298 km from Horseshoe Bay
1112	Dec. 3	13 47 56	51.6	123.3	c	3.3	Chilko Lake region
1113	Dec. 7	05 15 41	—	—	—	2.5	78 km from Alberni
1114	Dec. 11	22 47 26	49 23	123 45	a	2.1	Strait of Georgia
1115	Dec. 11	23 05 26	49 21	123 34	a	2.1	Strait of Georgia
1116	Dec. 16	17 27 47	49.4	127.2	a	6.0	Off coast of Vancouver Island
1117	Dec. 18	07 46 15	—	—	—	2.8	148 km from Alberni
1118	Dec. 18	09 35 39	—	—	—	2.0	102 km from Victoria
1119	Dec. 22	19 54 45	48.1	122.1	b	2.5	Puget Sound

TABLE I—*Continued*

Map No.	Date	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
			1958				
1120	Jan. 3	08 05 57	—	—	—	1.8	105 km from Horseshoe Bay
1121	Jan. 6	02 50 54	47°	124°	c	2.6	Western Washington
1122	Jan. 6	11 50 23.6	—	—	—	2.4	120 km from Horseshoe Bay
1123	Jan. 8	19 24 12	49 14	123 00	a	2.2	Vancouver area
1124	Jan. 12	18 42 43	44	130	a	4.4	Off coast of Oregon
1125	Jan. 19	12 57 22	49 32	123 09	a	2.0	Howe Sound
1126	Jan. 21	20 59 05	48 19	123 44	a	2.7	Off Beechy Head
1127	Jan. 21	21 22 11	48 19	123 44	a	2.6	Off Beechy Head
1128	Jan. 26	08 20 34	—	—	—	1.6	56 km from Victoria
1129	Jan. 26	10 17 32	48.5	124.3	c	2.0	Southeast of Port Renfrew
1130	Jan. 26	20 24 39	—	—	—	1.4	25 km from Horseshoe Bay
1131	Jan. 29	08 38 29	49.0	125.5	c	2.4	Near Ucleulet
1132	Feb. 2	03 07 43	49.1	124.0	c	1.8	Southwest of Nanaimo
1133	Feb. 4	23 01 02	48.5	123.8	c	1.2	Northwest of Victoria
1134	Feb. 6	03 13 04	50.1	121.3	c	2.6	Southeast of Lytton
1135	Feb. 10	10 51 25	48 42	122 49	a	2.2	Gulf Islands
1136	Feb. 16	22 14 20	49 19	123 41	a	2.1	Strait of Georgia
1137	Feb. 18	13 40 05	50.1	129.1	a	3.7	West of Vancouver Island
1138	Mar. 1	18 53 39	—	—	—	—	
1139	Mar. 1	19 08 43	48 41	124 37	b	2.0	Nitinat Lake region
1140	Mar. 2	14 38 06	48 43	123 21	a	1.4	Gulf Islands
1141	Mar. 3	19 34 42	49 34	123 43	a	3.0	Sechelt region
1142	Mar. 3	19 49 50	49 28	123 41	a	2.0	Sechelt region
1143	Mar. 5	11 43 45	49	129	c	3.1	West of Vancouver Island
1144	Mar. 7	18 06 29	48.8	123.4	c	1.5	Gulf Islands
1145	Mar. 9	17 49 10		—	—	2.7	132 km from Alberni
1146	Mar. 9	23 16 32	47.4	122.5	c	2.1	Puget Sound area
1147	Mar. 10	09 19 53	—	—	—	2.7	69 km from Alberni
1148	Mar. 12	19 11 27	—	—	—	.9	9 km from Victoria
1149	Mar. 13	23 38 59	49.1	122.2	c	3.0	Sumas area, *or* Olympic Mtns.
1150	Mar. 18	13 30 46	49.0	122.4	c	3.1	Sumas area
1151	Mar. 22	03 25 18	51.1	123.8	c	2.9	Chilko Lake area
1152	Mar. 31	22 13 40	48 19	123 44	a	2.5	Beechy Head
1153	Apr. 2	10 02 45	—	—	—	2.1	52 km from Alberni
1154	Apr. 2	10 12 07	48 48	125 05	a	2.3	Barkley Sound region
1155	Apr. 6	05 56 49	44.0	126	c	4.0	Off coast of Oregon
1156	Apr. 8	05 15 52	—	—	—	2.5	59 km from Alberni
1157	Apr. 8	05 17 54	—	—	—	2.0	52 km from Alberni
1158	Apr. 12	22 37 12	48.0	119.9	a	4.1	Central Washington
1159	Apr. 28	02 09 58	48.4	122.6	c	2.0	Puget Sound
1160	Apr. 28	13 10 07	—	—	—	2.7	128 km from Alberni
1161	Apr. 28	14 23 23	48.5	125.5	c	2.6	Barkley Sound region
1162	Apr. 29	20 05 22	48.4	123.6	b	2.8	Beechy Head
1163	Apr. 29	20 14 55	48 25	123 44	a	2.5	Beechy Head
1164	May 1	18 25 16	49 10	124 01	a	2.1	Strait of Georgia
1165	May 3	22 12 30	47.5	124.6	c	2.2	Off coast of Washington
1166	May 5	02 01 50	47.7	124.6	c	2.5	Off coast of Washington
1167	May 5	22 10 34	—	—	—	2.5	95 km from Alberni
1168	May 6	21 10 33	48.2	122.0	c	2.0	Puget Sound area
1169	May 7	11 03 28	48 38	122 32	a	3.3	Puget Sound region
1170	May 7	17 28 13	45.2	124.5	c	3.5	Off coast of Oregon
1171	May 9	04 47 43	50.1	125.0	b	2.3	Strait of Georgia
1172	May 9	22 58 36	—	—	—	1.0	22 km from Victoria
1173	May 12	17 00 35	—	—	—	2.8	240 km from Victoria
1174	May 18	05 34 47	48 47	125 13	a	2.0	Barkley Sound region
1175	May 22	20 13 01	48 01	121 36	a	4.2	Mount Baker region
1176	May 22	21 55 37	48 41	121 38	a	3.0	Mount Baker region

TABLE I—*Continued*

Map No.	Date	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
				1958			
1177	May 22	22 14 38	48°43′	122°01′	a	3.0	Mount Baker region
1178	May 27	18 52 51	48.7	121.5	c	2.2	Mount Baker region
1179	May 28	16 45 54	46½	113	—	—	Felt at Anaconda, Butte and Philipsburg. B.C.I.S. Montana
1180	May 30	16 23 53	49	125.1	c	2.6	Barkley Sound region
1181	May 30	21 23 20	48.1	123.7	a	2.7	Olympic peninsula
1182	May 31	07 34 59	48.0	128.4	a	3.5	Off coast of Washington
1183	May 31	21 34 16	47.3	127.0	c	3.1	Off coast of Washington
1184	June 2	21 20 33	48 44	123 38	a	1.7	Southern Vancouver Island
1185	June 3	16 28 35	—	—	—	1	22 km from Horseshoe Bay
1186	June 8	04 49 18	—	—	—	1.5	30 km from Alberni
1187	June 9	10 38 30	50.2	123.8	c	2.7	Head of Jervis Inlet
1188	June 9	23 19 02	49 14	124 11	a	2.5	South Vancouver Island
1189	June 19	11 52 46	44.5	128.0	c	4.2	Off coast of Oregon
1190	June 19	21 50 31	48 54	124 40	a	2.3	Nitinat Lake region
1191	June 28	10 18 15	48 06	123 00	b	2.3	Puget Sound area
1192	June 30	05 54 49	—	—	—	1.6	62 km from Victoria
1193	July 3	11 11 25	48 47	122 09	b	2.1	Mount Baker region
1194	July 3	21 10 45	48 13	123 34	b	2.4	South of Victoria
1195	July 4	05 56 51	48 06	122 05	b	2.8	Puget Sound region. Possibly felt in Vancouver
1196	July 9	17 32 46	48 42	123 17	a	2.4	Gulf Islands
1197	July 10	04 23 20	48.8	122.4	c	3.0	Puget Sound region
1198	July 10	06 15 54	58½	136	a	8	Lituya Bay, Alaska
1199	July 10	14 51 34	48 13	122 33	b	2.4	Gulf Islands
1200	July 10	19 04 18	47 33	125 52	b	3.0	Off coast of Washington
1201	July 10	20 06 10	48 52	122 12	a	2.8	Mount Baker region
1202	July 12	18 02 59	—	—	c	2.5	Eastern British Columbia
1203	July 13	01 41 52	47.8	122.3	c	3.1	Puget Sound
1204	July 21	05 51 35	48.8	122.3	c	2.3	Puget Sound region
1205	July 29	21 14 17	48 43	123 13	a	2.0	Gulf Islands
1206	July 31	07 22 11	48.6	123.1	b	2.5	Gulf Islands
1207	Aug. 1	21 04 23	48 16	124 58	b	2.4	Off coast of Washington
1208	Aug. 6	00 07 07	48 41	124 41	c	1.7	Southwest Vancouver Island
1209	Aug. 6	04 24 37					
		04 24 41	49.5	127.7	c	3.3	Nootka Sound region. Seemed to be double
1210	Aug. 8	18 04 05	48 17	123 45	a	2.7	Strait of Juan de Fuca
1211	Aug. 14	21 21 42	48 33	123 19	b	1.9	Gulf Islands
1212	Aug. 23	05 26 48	48 44	123 01	b	2.4	Gulf Islands
1213	Aug. 31	06 02 01	—	—	c	3.7	Off coast of Oregon
1214	Aug. 31	17 33 56	48.4	123.6	c	1.6	Strait of Juan de Fuca
1215	Sept. 5	23 28 46	—	—	—	1.9	20 miles from Banff
1216	Sept. 11	00 35 51	48 54	122 09	b	2.5	Mount Baker region
1217	Sept. 15	14 25 31	47 42	124 36	b	2.6	Off coast of Washington
1218	Sept. 16	01 34 35	—	—	c	2.6	Puget Sound region
1219	Sept. 19	02 18 36	47.9	122.7	c	3.1	Puget Sound region
1220	Sept. 21	06 48 —	—	—	—	3	West of Alberni
1221	Oct. 3	00 08 50	47.6	124.5	c	3.0	West of Seattle
1222	Oct. 3	21 18 53	49 36	122 49	c	2.2	Northeast of Vancouver
1223	Oct. 7	05 07 56	47.4	124.0	c	3.3	Southern Olympic Mtns.
1224	Oct. 12	22 31 02	48 41	124 41	c	2.2	Southwest Vancouver Island
1225	Oct. 18	11 16 53	—	—	—	2.5	South of Victoria
1226	Oct. 20	21 27 17	44	129	c	4	Off coast of Oregon
1227	Oct. 22	03 47 17	49	129	c	3.4	Off west coast
1228	Oct. 22	20 16 30	49 06	123 57	a	2.5	South of Nanaimo
1229	Oct. 27	07 39 15	—	—	—	4	Southwestern Alberta
1230	Nov. 2	22 14 40	48 35	123 42	a	1.9	Northwest of Victoria
1231	Nov. 9	07 47 37	47.6	122.4	c	2.1	Near Seattle

TABLE I—*Continued*

Map No.	Date	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
				1958			
1232	Nov. 13	22 56 42	48°33′	121°33′	b	2.2	Southeast of Mount Baker
1233	Nov. 23	14 50 58	49 46	123 40	a	2.1	Strait of Georgia?
1234	Nov. 24	04 17 44	—	—	c	2.4	Gulf of Georgia
1235	Nov. 28	22 32 48	48 38	123 07	a	1.9	Gulf Islands
1236	Dec. 4	17 45 47	49 26	123 56	a	2.2	Sechelt Peninsula
1237	Dec. 4	18 00 51	49 21	123 52	b	2.1	Gulf of Georgia
1238	Dec. 4	18 13 20	49 28	123 55	a	2.1	Gulf of Georgia
1239	Dec. 6	21 09 59	49 04	122 54	a	2.5	Boundary Bay
1240	Dec. 7	14 43 01	49 03	123 10	a	2.2	Gulf of Georgia
1241	Dec. 7	22 23 09	49 03	123 11	a	2.0	Gulf of Georgia
1242	Dec. 9	18 38 42	49 19	123 59	b	2.4	Gulf of Georgia
1243	Dec. 19	00 33 19	49 03	122 54	a	2.4	Boundary Bay
1244	Dec. 19	06 43 09	49 07	122 44	a	2.3	Fraser Valley
1245	Dec. 20	06 42 03	48 37	124 39	b	2.0	Port Renfrew
1246	Dec. 25	17 58 28	51.1	124.6	b	3.2	Head of Bute Inlet
1247	Dec. 28	08 02 53	48 43	123 07	a	2.2	Gulf Islands
1248	Dec. 28	15 50 13	48 41	123 14	a	2.2	Gulf Islands
1249	Dec. 28	19 58 12	48 42	123 15	a	2.4	Gulf Islands
1250	Dec. 31	07 54 49	48.8	122.3	b	2.1	East of Bellingham
				1959			
1251	Jan. 15	19 16 10	50.5	128.9	b	4.2	Northwest of Vancouver Island
1252	Jan. 16	16 50 46	52.0	130.9	a	5.4	Queen Charlotte Islands. Felt at Queen Charlotte Islands and Prince Rupert
1253	Feb. 1	07 51 14	48 52	123 32	a	2.3	Gulf Islands
1254	Feb. 4	20 19 40	59½	138	—	—	U.S.C.G.S.
1255	Feb. 4	22 51 58	48 30	123 48	b	2.6	Strait of Juan de Fuca
1256	Feb. 6	13 42 05	48	128	c	3.7	Off Vancouver Island
1257	Feb. 13	00 39 32	45.0	128.0	b	4.3	Off coast of Oregon
1258	Feb. 17	03 08 37	49 29	124 02	a	2.3	Strait of Georgia
1259	Feb. 17	03 22 26	49 36	124 07	a	2.5	Strait of Georgia
1260	Feb. 17	03 29 59	49 32	124 05	a	2.4	Strait of Georgia
1261	Feb. 17	20 21 50	65½	126	—	—	Northwestern Canada. U.S.C.G.S.
1262	Feb. 17	20 25 22	49 04	124 06	a	2.2	Southern Vancouver Island
1263	Feb. 18	23 37 21	49½	129½	c	3.6	West coast of Vancouver Island
1264	Mar. 5	02 19 55	47.7	121.6	b	2.4	East of Seattle
1265	Mar. 6	19 15 36	46.5	129.5	c	3.9	Off coast of Oregon
1266	Mar. 6	19 47 00	45	128	c	4.0	Off coast of Oregon
1267	Mar. 14	19 58 25	48 56	122 11	a	2.4	Sumas area
1268	Mar. 16	00 13 04	48 28	122 37	b	2.2	Gulf Islands
1269	Mar. 20	15 41 58	45	126	c	3.7	Off coast of Oregon
1270	Mar. 21	20 38 55	48.6	122.7	b	3.2	Puget Sound area
1271	Mar. 27	07 03 13	48 04	123 50	a	2.9	Olympic Mtns.
1272	Apr. 4	02 04 58	48 40	123 42	a	2.2	Gulf Islands, H greater than normal
1273	Apr. 4	13 29 23	48 58	121 54	a	2.4	Sumas region
1274	Apr. 4	13 34 11	48 50	122 12	b	2.0	Puget Sound region
1275	Apr. 4	20 25 38	48.7	123.6	c	2.2	Northwest of Victoria
1276	Apr. 12	03 07 35	—	—	—	3½	West of Vancouver Island
1277	Apr. 14	21 55 50	47.9	121.8	c	2.9	Puget Sound region
1278	Apr. 18	14 16 20	49 11	123 53	a	2.2	Gulf Islands
1279	Apr. 20	00 27 22	48 48	123 10	a	2.1	Gulf Islands
1280	Apr. 20	01 55 33	48 46	123 21	a	2.0	Gulf Islands
1281	Apr. 22	07 14 44	48 45	123 15	a	2.3	Gulf Islands
1282	May 2	20 09 17	48 57	122 11	b	2.2	Sumas region
1283	May 2	20 35 48	48 43	123 23	a	2.4	Gulf Islands
1284	May 9	00 24 51	47.5	122.7	c	2.4	Puget Sound region

TABLE I—*Continued*

Map No.	Date	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
				1959			
1285	May 10	01 05 32	50°4	115°1	c	3	Rockies, S.E. of Banff
1286	May 10	02 04 16	48 46	123 22	a	2.7	Gulf Islands
1287	May 11	20 53 46	48 36	123 02	b	1.3	Gulf Islands
1288	May 31	15 01 08	51.7	130.2	b	4.4	South of Queen Charlotte Islands
1289	May 31	16 14 45	—	—	—	3.6	Seemed southwest of above tremor
1290	May 31	16 34 46	—	—	—	—	Aftershock of above
1291	June 2	08 34 55	48.7	122.0	c	2.2	Northwestern Washington
1292	June 5	22 34 34	—	—	—	1.3	Southeast of Victoria
1293	June 12	08 21 03	48.7	127.2	c	3.1	West of Vancouver Island
1294	June 15	23 18 37	48.9	124.1	c	2.1	Southern Vancouver Island
1295	June 16	21 48 38	48 34	123 48	c	1.4	Southern Vancouver Island
1296	July 4	05 27 22	47 54	123 05	b	3.0	Olympic Mtns.
1297	July 5	08 21 08	52	131	c	4.1	Queen Charlotte Islands
1298	July 8	17 27 38	47.9	123.6	c	2.2	Olympic Mtns.
1299	July 10 or July 11	08 01 43	47.7	119.5	c	2.9	North-central Washington
1300	July 18	12 19 05	49.5	127.0	b	3.1	Off coast of Vancouver Island
1301	July 21	21 24 50	48 42	123 42	a	1.6	Southern Vancouver Island
1302	July 22	04 05 52	48.3	122.7	b	2.5	Gulf Islands
1303	July 22	04 07 10	48.2	122.7	b	2.4	Gulf Islands
1304	July 22	15 34 13	48.6	124.7	a	2.4	West Vancouver Island
1305	July 23	06 41 19	51	122	c	2.6	Near Lillooet
1306	July 23	08 15 24	45.4	124.5	a	4.2	Off coast of Oregon
1307	July 27	03 27 45	49 00	123 04	a	2.3	Boundary Bay
1308	July 28	12 28 08	49.5	130.0	c	3.2	Off west coast
1309	July 30	07 19 19	48 24	122 32	b	2.4	Gulf Islands
1310	Aug. 2	09 35 52	47.8	126.4	b	3.0	Off coast of Washington
1311	Aug. 2	09 48 59	49 34	126 09	b	2.5	Near Nootka Sound
1312	Aug. 6	03 44 32	47.8	119.9	b	4.4	North-central Washington
1313	Aug. 6	04 36 16	—	—	—	3.9	Aftershock
1314	Aug. 13	13 56 14	48 43	124 27	a	2.7	Southwest Vancouver Island
1315	Aug. 14	21 15 05	49 21	123 37	a	2.7	Strait of Georgia
1316	Aug. 14	21 22 12	49 18	123 33	b	2.0	Strait of Georgia
1317	Aug. 14	21 28 32	49 20	123 33	a	2.3	Strait of Georgia
1318	Aug. 18	06 37 13	44½	111	a	7.3	Montana earthquake
1319	Aug. 18	18 07 33	47.9	120.1	c	—	Central Washington
1320	Aug. 20	23 07 19	48 30	123 39	b	1.8	South Vancouver Island
1321	Aug. 22	04 52 57	—	—	—	2.3	157 km from Banff
1322	Aug. 22	23 42 54	48 33	122 50	b	2.3	Gulf Islands
1323	Aug. 23	15 02 39	—	—	—	—	130 km N.W. of Alberni
1324	Aug. 23	23 11 15	48.4	122.5	b	3.1	Gulf Islands
1325	Aug. 24	17 29 17	48 04	124 19	a	2.4	Olympic Mtns.
1326	Aug. 25	17 12 22	48 28	122 28	a	2.9	Puget Sound region
1327	Aug. 26	07 18 22	50.9	125.9	b	2.8	Knight Inlet
1328	Aug. 26	07 29 42	150.9	125.9	b	2.9	Knight Inlet
1329	Aug. 26	10 27 41	52.2	129.9	b	5.7	South of Queen Charlotte Islands
1330	Sept. 2	02 35 44	47.9	123.0	c	2.5	Olympic Mtns.
1331	Sept. 4	20 57 35	48 46	123 18	a	3.4	Gulf Islands, heard and felt in Mount Douglas area of Victoria
1332	Sept. 5	01 17 50	—	—	—	1.7	28 km from Banff
1333	Sept. 10	02 27 14	48 18	124 30	b	1.9	Olympic Mtns.
1334	Sept. 17	05 48 47	48.4	122.7	c	2.8	Gulf Islands
1335	Sept. 22	21 31 24	—	—	—	—	54 km from Banff
1336	Sept. 28	11 00 16	48.1	128.2	a	3.1	Off west coast
1337	Oct. 1	05 07 39	48.1	122.1	c	1.7	Puget Sound region
1338	Oct. 1	22 49 34	—	—	—	1.4	25 km from Banff

TABLE I—*Concluded*

Map No.	Date	Origin Time (G.C.T.)	Latitude North	Longitude West	Q	M	Remarks
				1959			
1339	Oct. 2	10 51 52	—	—	—	—	160 km from Banff
1340	Oct. 4	21 40 50	47°7	123°	c	3.3	Olympic Mtns.
1341	Oct. 6	10 04 15	—	—		1.5	110 km from Horseshoe Bay
1342	Oct. 6	10 06 00	—	—	—	1.3	45 km from Victoria
1343	Oct. 6	21 47 13	—	—	—	1.9	34 km from Banff
1344	Oct. 6	22 03 32	49.6	114.7	c	2.4	Crowsnest area
1345	Oct. 14	21 35 37	47 57	121 46	a	3.9	Puget Sound region. Felt at Munroe and Sultan, Washington
1346	Oct. 15	04 51 12	48 48	125 45	b	2	West coast of Vancouver Island
1347	Oct. 15	23 05 24	49.7	123.6	c	2.8	Sechelt region
1348	Oct. 15	23 15 14	49.5	123.8	c	2.8	Sechelt region
1349	Oct. 15	23 21 10	49.6	123.7	c	2.8	Sechelt region
1350	Oct. 16	00 03 24	48.4	123.8	c	1.5	
1351	Oct. 16	17 54 24	48.5	124.7	c	2.2	
1352	Oct. 20	23 47 54	—	—	—	1.8	107 km from Victoria
1353	Oct. 21	08 04 36	48.9	125.7	c		Less than magnitude 1
1354	Oct. 22	01 10 04	50.2	124.1	b	2.5	Head of Jervis Inlet
1355	Oct. 22	03 37 28	48.0	122.1	b	2.7	Puget Sound region
1356	Oct. 24	00 34 47	48 17	124 38	a	2.1	Olympic Mtns.
1357	Oct. 24	13 43 22	51.9	130.9	c	4.5	Off south tip of Queen Charlotte Islands
1358	Oct. 27	06 12 17	42.5	127	c	5–5½	Off coast of Oregon. U.S.C.G.S.
1359	Oct. 30	01 25 21	49 19	124 07	a	1.3	Strait of Georgia
1360	Oct. 31	19 22 24	44	125	c	4.0	Off coast of Oregon
1361	Oct. 31	19 43 57	48.3	123.0	c	2.0	Strait of Juan de Fuca
1362	Oct. 31	20 51 13	49 27	126 53	b	3.2	Off west coast of Vancouver Island
1363	Nov. 5	07 47 36	47.1	124.8	b	2.9	Off Washington coast
1364	Nov. 11	02 02 41	48.6	122.5	b	2.9	Puget Sound region
1365	Nov. 11	02 38 39	48.4	122.5	c	2.1	Puget Sound region
1366	Nov. 18	00 10 20	48.5	121.8	c	2.2	Northwestern Washington
1367	Nov. 18	23 48 32	48.4	122.6	c	3.4	Puget Sound region
1368	Nov. 21	01 09 59	48 24	122 39	b	2.3	Puget Sound region
1369	Nov. 21	03 32 49	48.4	121.3	c	2.2	Northwestern Washington
1370	Nov. 24	06 15 45	46 55	121 47	b	3.1	Northwestern Washington
1371	Nov. 27	22 53 09	50.1	123.9	c	2.0	Head of Jervis Inlet
1372	Dec. 9	20 54 42	48.6	123.1	c	—	Gulf Islands
1373	Dec. 12	06 21 53	48 39	123.1	b	1.4	Gulf Islands
1374	Dec. 12	06 24 19	48 40	123 05	a	4.5	Gulf Islands. Felt from Sooke to Chilliwack; Seattle to Nanaimo
1375	Dec. 12	06 25 33	48.7	123.1	c	3.1	Gulf Islands
1376	Dec. 12	06 38 57	48.7	123.1	c	0.5	Gulf Islands
1377	Dec. 12	06 51 30	48.7	123.1	b	3.3	Gulf Islands
1378	Dec. 12	07 38 23	48.7	123.1	c	0.7	Gulf Islands
1379	Dec. 12	10 29 57	48.6	123.3	c	2.4	Gulf Islands. Poor Location
1380	Dec. 13	12 35 19	49.7	119.4	c	2.7	Penticton area
1381	Dec. 13	21 32 43	48.6	123.1	b	2.1	Gulf Islands
1382	Dec. 14	15 42 57	—	—	—	2.4	56 km from Alberni
1383	Dec. 14	23 39 58	48.7	123.1	c	1.1	Gulf Islands
1384	Dec. 23	00 47 53	—	—	—	2.0	78 km from Horseshoe Bay
1385	Dec. 26	10 59 56	51.1	129.6	c	3.8	Off coast of Vancouver Island
1386	Dec. 27	21 14 23	—	—	—	1.9	37 km from Victoria; 74 km from Horseshoe Bay
1387	Dec. 29	12 07 15	52.3	127.8	b	3.8	Coast of British Columbia
1388	Dec. 29	12 47 21	52.1	127.7	b	3.6	Coast of British Columbia
1389	Dec. 30	02 05 26	49 08	124 13	a	1.8	Southern Vancouver Island