

ABSTRACTS OF PAPERS PRESENTED AT MEETING AT STANFORD
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DRAINAGE OF UPPER TWIN LAKE, FRESNO COUNTY, CALIFORNIA

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Upper Twin Lake is a small shallow rock-bottom lake on the north side of Kaiser Ridge at an elevation of 8500 feet. The lake basin is of glacial origin and is formed principally in granitic rocks of the Sierra Nevada batholith but is margined on the north by a marble roof pendant. At normal lake level the lake water flows into a sinkhole in the marble and reappears as a spring at an elevation 50 feet lower and 1000 feet from the sink. Few small sinks not exceeding 10 feet in depth occupy an abandoned, shallow, surface sluiceway across the marble outcrop.

The site of the lake basin and adjacent area was covered with glacier ice. The weathered condition of the erratics and moraine and the absence of glacier polish suggest the late Tahoe or early Tioga age of the glacier formerly occupying this area.

The writer believes that during the time glacier ice occupied the Twin Lake basin there was little or no subterranean drainage. The melt water from the ice crossed the marble roof pendant as subglacial and as surface drainage. The creation of the lake and the initiation of its subsurface drainage occurred in late Tahoe or early Tioga time.

STATUS OF TOPOGRAPHIC AND GEOLOGIC MAPPING IN OREGON IN 1946*

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Study of geology in Oregon has been handicapped by a lack of adequate topographic base maps. Only 30 per cent of the State has been mapped on a scale of 1:125,000, and 14 per cent on a scale of 1:62,500. Mapping on the latter scale is restricted largely to northwestern Oregon. By dividing Oregon into quadrants with the lines of 44° latitude and 122° longitude, the relative areas mapped (in per cent) may be estimated as follows:

<i>Quadrant</i>	<i>15' quadrangles</i>	<i>30' quadrangles</i>	<i>Not mapped</i>
Northwestern Oregon.....	73	17	10
Southwestern Oregon.....	18	48	34
Northeastern Oregon.....	4	46	50
Southeastern Oregon.....	0	10	90

The State Department of Geology and Mineral Industries has published nine geologic maps on a scale of 1:96,750 since 1938. The area mapped is about 6861 square miles. Geologic maps on a scale of 1:125,000 by this and other agencies cover 4830 square miles. These, together with other small areas on larger scales, total less than 20 per cent of the State.

Unpublished geologic maps or geologic mapping in progress account for a total of nearly 10,000 square miles. Three agencies have completed manuscripts on or are working in 19 areas in the State as follows:

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recently installed by Dr. H. R. Vinyard at Oregon State College, especially when supplemented by additional equipment.

TRANSMISSION OF EXPLOSIVE IMPULSES IN THE SEA*

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Under-water explosions produce short, intense, steep-fronted pressure pulses that have proved useful in the study of under-water transmission. Observations made at sea near San Diego by the UCDWR, using electric blasting caps as sound sources, demonstrate a number of significant features of sound transmission in the sea.

During the measurements, the sea temperature near the surface generally decreased with depth, causing downward refraction of the sound rays. A theoretical "shadow zone" is cast by the sea's surface under these conditions.

Oscillograms of the received pulses fall into three general classes.

- (1) Near the source the time difference between the direct and surface-reflected pulse permits their resolution. In this region the direct-pulse shape is usually independent of distance from the source, and its intensity can be calculated from ray theory with reasonable accuracy.
- (2) As the boundary of the "shadow zone" is approached, the initial time of rise of the pressure pulse increases sharply with range, the intensity decreases, and the direct and reflected pulses are no longer resolved.
- (3) Within the "shadow zone" the sound is weak and decreases rapidly with increasing range. The pulse becomes elongated and executes several oscillations with a period of the order of a few hundred microseconds.

PROJECTED ACTIVITIES, U. S. COAST AND GEODETIC SURVEY, IN SEISMOLOGY

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This paper treats of the instrumental and operational plans of the Bureau for better service to the public. Emphasis will be upon the engineering seismology or "strong-motion" studies in western United States, and upon the problem of a seismic sea wave warning service for the Pacific Ocean area.

RECENT EARTHQUAKES IN LASSEN VOLCANIC NATIONAL PARK

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A swarm of earthquakes, many of which were felt locally, were recorded by the Mineral seismograph from April 29 to May 5, 1946. The swarms started again early in June and continued into August. The sharpest quake was of such intensity that campers in the park, thinking Lassen Peak was erupting, left the area during the night.

Based on existing faults, renewed hot-spring activity, local reports on felt quakes, and S-P intervals measured on seismograph records from Shasta Dam and Mineral, the source of these shocks appears to be in the Warner Valley section of Lassen Volcanic National Park.

* This article is based upon work performed for the Bureau of Ships and OSRD under Contract NObs-2074 (formerly OEMsr-30) with the University of California Division of War Research.