is composed of lithic rhyolite, pumice, vitrophyre and pre-volcanic basement clasts in a glassy ash matrix. The blocks are angular and weakly vesiculated. The large scale structure of the deposit consists of sub-radial dune crests and troughs of large amplitude and wavelength. The general attitude is gently-dipping flat beds (20-25°) of 2 to 10 cm thickness. Bomb sag depressions up to 10 cm are common. Size analyses of the coarse flat beds yield the following parameters: phi mean = $-.68 \pm .78$, graphic standard deviation = $1.76 \pm .50$, skewness = $0.18 \pm .12$, and graphic kurtosis = $1.02 \pm .24$. Locally, dunes with an average wavelength to amplitude ratio of 18:1 develop in the fine-grained ash. Bedding in these dunes is on the order of 0.5 mm thick. Size parameters of tephra from the dune forming layers are: phi mean = $3.57 \pm .39$; graphic standard deviation = $2.31 \pm .10$, skewness = $.33 \pm .06$, and graphic kurtosis = $1.05 \pm .10$. The cause of the base-surge type of eruption is due to movement of magma up into water saturated soil at the mouth of the Interior Valley. This explosive eruption brecciated the glassy plug but produced little vesiculation of the magma.

THE STRUCTURE OF A PART OF THE EASTERN PORTION OF THE MONO-SESPE BLOCK, VENTURA COUNTY, CALIFORNIA

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Structures within the Mono-Sespe Block generally trend east-west. Most folds are asymmetrical with axial planes generally forming a fan fold complex. Faults are south-dipping high angle reverse structures located at or near the axis of large folds. The Piedra Blanca fault is a rotational branch of the Tule Creek fault. Folding preceded faulting and resulted in structural patterns along which later faulting occurred. All of the structures may have formed in a single post-Middle Miocene period of deformation. No evidence for lateral movement of the faults was observed. The amount of crustal shortening may be 1 to 2 miles and is undoubtedly much more near the convergence of the Pine Mountain and Santa Ynez faults.

STRUCTURE OF SEDIMENTS UNDER THE SALTON SEA

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The Salton Sea occupies a depression in the Salton trough, which is the landward extension of the Gulf of California. Data on subbottom structure were derived from sparker surveys by the California Department of Water Resources and the U.S. Geological Survey.

The data support the following conclusions concerning structure of subbottom sediments: 1) The southern half of the Salton Sea overlies a large number of folds and faults trending northwest to southeast generally parallel to the axis of the sea and the San Andreas fault bordering the sea on the northeast. 2) Normal faults offset distinctive reflecting horizons several hundred feet. 3) Some of the faults have been recently active and may be active at present. 4) The major synclinal axis trends northwest to southeast and is located near the northeast shore of the sea. 5) Several parallel monoclinal folds are successively downdropped toward the synclinal axis. These steplike folds probably reflect deeper normal faults. 6) A change in the seismic character of sediments along a belt 2 to 3 miles seaward from the northeast shore probably represents a fault contact of Borrego Formation to the east with younger sediments. 7) Prevalent small-scale folding near faults suggests compression during strike-slip shearing. 8) A transverse discontinuity south of the central part of the sea appears to displace horizontally most of the longitudinal structures.

The origin of the Salton trough is not conclusively proven by studies of the structure under the Salton Sea, but the data suggest that the basin has opened by combined lateral shearing and dilation and that the processes are very recently active if not presently continuing.

PLEISTOCENE TECTONICS OF THE WASHINGTON CONTINENTAL SLOPE

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The Washington continental margin has several successively deeper plateaus west of the shelf break. The lower plateaus off southern and central Washington consist of a series of ridges and basins striking parallel to the slope. The ridges, as interpreted from reflection profiles, are westward-dipping imbricate thrust sheets, formed by compression of Cascadia basin turbidites against the slope. The compression probably results from eastward subduction of the Juan de Fuca plate, and north-trending oceanic magnetic anomalies on the plate surface extend 40 km eastward beneath the continental slope. Thrusts may dip eastward in several places on the lower slope off northernmost Washington.

The upper 200 to 300 m of turbidites in the adjacent Cascadia basin were deposited after the last main episode of thrusting; locally these deposits are deformed by reverse faults of small offset west of the slope. These and other faults cutting turbidites in basins on the plateaus dip 30° to 60° west.

The latest thrusting is Pleistocene or younger because Pleistocene siltstone dredged from a ridge is stratigraphically equivalent to or below rocks involved in the younger thrust sheets.

PROBLEMS OF CRYSTALLINE ROCKS OF THE TRANSVERSE RANGES

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The crystalline rock complexes of the Transverse Ranges have yielded surprisingly consistent geochronological data from U-Pb isotope relations in zircons, despite their extended ancient and recently complicated histories. Continuing investigations require careful field as well as isotopic studies and both proceed slowly. Precambrian rocks have been positively identified in the (1) Frazier Mountain-Alamo Mountain region; (2) Soledad basin basement; (3) San Gabriel Mountains; (4) San Bernardino Mountains; (5) Orocopia Mountains and (6) Mojave and Colorado deserts. For the complexes west of the present San Andreas fault traces, the following Precambrian rock units have been discriminated so far (following Silver, 1966):

Layered quartzofeldspathic gneisses, amphibolites, quartzites and rare calc-silicate beds which probably accumulated in an interval between 1750 and 1680 my