associated with gravity anomalies, it makes sense to be sure there is a gravity anomaly to confirm the existence of a seismic structure.

There are still many structures, or prospects, to be leased and drilled offshore. The proper use of gravity data will greatly increase the ratio of successes to failures.

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NATURAL GAS REGULATION IN THE FUTURE

The pipeline transmission companies and producers may expect more liberal treatment in the future from the courts and the Federal Power Commission because this will be essential in the public interest. The Supreme Court, in the now famous CATCO case, directed the Commission to their responsibility under the Natural Gas Act to fix rates consistent with maintaining a supply of natural gas to the consumers.

We must assume that the courts and the Commission will not lose sight of this responsibility, but recent decisions disclose that this regulatory agency is not aware of the fact that they are faced at this time with maintaining a supply of natural gas to consumers.

The transmission companies must build and finance additional pipelines to meet increasing demands of consumers, but they have the problem today of obtaining the necessary funds at reasonable costs with the bloom being off pipeline investments. Consideration must be given to the depreciating rate base, rate of return, and other factors which determine the attractiveness of pipeline investments.

The Commission has recently followed the practice of not only using area pricing for the purpose of placing a lid on producers' prices, but also for rolling back existing area prices. The failure of many companies to bid on offshore acreage offered recently by the Federal Government and the State of Louisiana in areas known to contain proven or potential natural gas-producing acreage should be a warning that producers are losing their incentive to take the costly capital risks to drill for natural gas. This will have its effect on the supply of gas in 5 or 10 years. However, it is not believed that producers can hope for more liberal treatment until the Commission is convinced that there will be a shortage of natural gas in the near future.

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MANNED SPACEFLIGHT—A CHALLENGE TO GEOLOGISTS AND GEOPHYSICISTS

The advent of man in space opens new opportunities in the disciplines traditionally concerned with the surface and interior of the Earth. The synoptic view of the Earth's surface from an orbiting manned spacecraft affords a new avenue for investigation of regional geology. Considerable research and imagination are required to exploit it. The techniques developed may be expected to have important applications later in the exploration of Mars.

Men landing on the Moon will be able to apply the methods and instruments of geophysics and classical geology that are already well developed in the study of the Earth. Constraints of weight and time in spaceflight operations, however, require that considerable effort be spent in adapting these methods and instruments for optimum use in manned lunar missions. The ultimate results of this effort will include not only new knowledge about the Moon, but also new ideas, new techniques, and light-weight sophisticated instruments that can be applied in the study of the Earth.

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IMPACT SEISMIC TECHNIQUES

During the past few years there has been a general increase in the use of Impact Seismic Techniques to obtain geophysical data. In the extension and development of these techniques there has been some divergence from the original classic McCollum 2-patch technique. One such development has been the use of a large pattern of drops at a single drop area recorded by a standard multi-trace seismic unit. This is sometimes referred to as the "Mobil" technique. Another system in which a series of drop patterns are recorded along a standard seismic spread so as to provide for horizontal data stacking is designated the "Drop-Along" technique.

The relative merits of each of these techniques are discussed and their general areas of application outlined. Examples are presented showing results obtained by their use, as well as comparisons with each other and with standard shooting methods.

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CRUSTAL STRUCTURE UNDER THE CONTINENTAL TERRACE OF WESTERN NORTH AMERICA

Long reversed refraction profiles along the outer edge of the continental terrace have been made in numerous locations from Guatemala to the Bering Sea to determine the nature of the crustal section beneath the sediments. Off Guatemala, the structure is consistent with the theory that volcanic rocks and sediments have been laid down over a typical oceanic section, depressing the Moho as the upper surface built up to Pleistocene sea-level. Off western Alaska a thick section of material with granitic velocity is overlain by thick sediments; the Moho is down almost to continental depth, and the section appears to be similar to the adjacent continent.

Off the coasts of Canada, California, and Mexico, a more confusing structure is found. Depth to the Moho is between the Alaskan and Guatemalan values but does not show a progressive change. At some stations, the crustal velocities are similar to the continent; at other stations, crustal velocities are oceanic. In some places, the mantle velocity is abnormally low.

The depth to the Moho at all stations from Alaska to Guatemala is intermediate between continental and oceanic values. The mean depth is 21 km. From the data now on hand, one can only conclude that the crustal structure beneath the shelf is not uniform and cannot be reconciled with any simple hypothesis of either stability or growth of the continental mass.

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TV BOREHOLE CAMERA—A VISUAL APPROACH TO GEOPHYSICAL LOGGING

In recent years, miniaturization of electronic components has led to development of "seeing-eye" TV cameras capable of entering small-diameter boreholes. Commercially available cameras now can operate in 3-inch holes to depths exceeding 5,000 feet. Some cameras look downhole; others view sideward by means of rotating mirrors. Built-in compass systems permit accurate surveys of hole orientation and attitudes of planar elements intersecting the borehole.