responding to particular frequencies or dips on the section, one can remove such frequencies or dips from the reconstructed image. This is the basis for a new technique of optical filtering which United Geophysical Corporation has designated as LaserScan.

With this optical processing technique, the first step is an examination of the spectrum of the data. This technique lends itself well to the analysis and evaluation of the information on the seismic record sections being processed. Such a study commonly suggests optimum positions for filtering settings. Examples are given of this, and of the effects of some of the suggested filtering.

A number of seismic record sections are shown before and after filtering. The various examples show the enhancement of reflection data previously confused or concealed by the undesired events which are filtered out during the optical processing. Unwanted events are rejected by taking advantage of the differences between their dips (move out) and (or) frequencies and those of the desired reflections. Examples are discussed in which LaserScan techniques have been applied:

Reject multiple reflections which override or obscure genuine reflections dipping in different directions.
Remove diffractions and (or) reflected refractions.
Attenuate high velocity noise events.
Eliminate high frequency interference. LaserScan is very effective as a frequency filter because of the sharp cut-off slopes obtained.

Because hundreds of information channels can be processed in a single photographic operation, optical filtering has proved to be an efficient and economical method of frequency and velocity filtering.

MAYNE, HARRY W., Petty Geophysical Engineering Co.

COMMON REFLECTION POINT TECHNIQUES IN HIGHLY EXPLORED AREAS

Experience in some highly explored areas has demonstrated the need for enhancement of reflection record quality and attenuation of multiple reflections and other disturbances. The overall objective is to improve the signal-to-noise ratio.

A summary of the Common Reflection Point (CRP) Horizontal Data Stacking Techniques is given and the general application and advantages of the method are described.

Specific areas are chosen for typical field comparisons between conventional and stacked traverses to illustrate the improvement with CRP.

McGEE, DAVID C., San Diego State College

UPPER CRETACEOUS (CAMPANIAN) FORAMINIFERIDA FROM PUNTA BAJA, BAJA CALIFORNIA

The oldest post-batholithic fossils recognized in northwestern Baja California occur in an intricately faulted mudstone-sandstone-conglomerate section exposed at Punta Baja, near El Rosario. Foraminifers, mostly agglutinated species, occur through a part of the section which consists of 101 ft. of mudstone. That part of the section also contains the characteristic Campanian ammonoid, *Metaplacenticeras pacificum* (Smith). Representatives of the genera *Epistomina* and *Bulimina* (spinose forms) with the microfossil assemblages suggest an outer sublittoral or, more likely, bathyal environment of deposition for the mudstone.

McMURRY, H. V., The New Jersey Zinc Co.

OPTIMUM USE OF GEOPHYSICAL TOOLS IN EXPLORATION FOR BASE METAL ORES

The procedures generally used in prospecting for sulfide ore bodies are discussed. It is shown that entirely different circumstances govern the search for massive sulfide ore bodies compared with those involved in prospecting for disseminated sulfide deposits.

Massive sulfide deposits are excellent electrical conductors which commonly yield strong anomalies during rapid reconnaissance electromagnetic survey procedures. The difficulty in detecting them is that there are hundreds of barren non-sulfide geological conductors for every sulfide mass. For this reason the biggest problem in prospecting for massive sulfide ore bodies generally is that of devising means of screening large numbers of equally promising targets to find those few which are most likely to be rich in sulfides. Facts are presented to show that the screening processes can be carried out rapidly, thoroughly, and economically by intensive use of the gravity meter and the portable refraction seismograph.

The induced polarization method is the only geophysical procedure which responds to buried, disseminated, metallic mineral deposits. It is, therefore, widely used in prospecting for buried porphyry copper ore bodies. The feasibility of and need for extensive calculations of the induced polarization responses of geological bodies of simple geometrical form is explained. Examples are presented which show how work of this kind has been valuable in evaluating the merits of the induced polarization method, in the planning of induced polarization surveys, and in the interpretation of field data.

NETTLETON, L. L., Gravity Meter Exploration Co., Geophysical Associates International

SURFACE SHIP GRAVITY METER OPERATIONS OFF PACIFIC COAST

A survey of approximately 3,000 miles of traverse off the Pacific coast of Oregon and Washington was carried out in the summer of 1964. The instrumentation was the LaCoste and Romberg mobile gravity meter using the suspended system and horizontal accelerometers for Browne corrections. The work was controlled by occasional observations with an underwater gravity meter on bottom. Precision of results can be evaluated by comparison with these observations and by gravity differences at intersecting traverses. The paper will describe the operation, present a sample traverse and map area, and will include an evaluation of the precision of the observations.

OBRADOVICH, JOHN D., U. S. Geological Survey, Denver

AGE OF MARINE PLEISTOCENE OF CALIFORNIA

Isotopic ages determined on glauconite from the Lomita Marl Member of the San Pedro Formation indicate that the marine Pliocene-Pleistocene boundary, as recognized in California by Woodring and others, is at least 3 million years old.

PARKER, FRANK S., consultant

SUMMARY GEOLOGY OF OFFSHORE OIL PRODUCING AND POTENTIAL AREAS OF PACIFIC COAST

The area is bounded by the shoreline, the 100-fathom line, and the Mexican and Canadian borders, but these