S attitude of the restored Lower Jurassic spreading ridge, remnants of which are found in the ophiolite sequences of Jugoslavia and Albania, and the E–W transform between Spain and North Africa.

Powerful as this method is in unravelling the complex plate motions involved in the Alpine Orogeny, we have as yet completely inadequate data for it to be used in connexion with the older orogenic belts.

SELENOLOGY

Astronauts in Britain

by our Astronomy Correspondent

BRITAIN'S tight-knit lunar and planetary science community last week had more opportunities than usual for getting together. On Monday morning nearly two dozen lunar scientists gathered at Cambridge for a private session with the Apollo 15 astronauts, most of them later hot-footing to London for an afternoon meeting of the Royal Society discussion group on lunar and planetary sciences. On Friday many of them were back in London again, this time for a discussion on the temperature regime within the Moon, the first of this season's specialist meetings of the Royal Astronomical Society which have become such a success since their introduction last year.

Of the three meetings, that at the Royal Society was the most significant. Attended also by Mr J. Smith and Mr J. Hosie of the Natural Environment Research Council and the Science Research Council respectively, the chief sources of support for British lunar and planetary sciences, the meeting included a review of the programmes that are under way and the prospects for the future. One interpretation of the outcome of the meeting was that the research councils could offer little hope of a diversion of funds to the lunar and planetary sciences in the foreseeable future.

Earlier in the day the dialogue with the Apollo 15 astronauts uncovered no information that had not already been revealed by Houston. Nevertheless the way in which the meeting developed, with attention centring on what might be termed lunar stratigraphy, suggested that in future the factors that have resulted in the morphology of the lunar surface may soon be receiving as much attention as the petrology of the lunar samples has up to now.

Colonel David Scott and Colonel James Irwin, who made up the Apollo 15 landing party, were lucky in being the first to visit an area of the Moon having a rich landscape. But they were unable to throw any light from their personal observations on the origin of the Hadley rille, the most striking feature in the landing area. There were certainly no markings on the floor of the 400 m deep rille that indicated to the astronauts how it might have been formed. But Scott reported that the rille appeared to cut through a well-defined unit of rock—visible on the wall of the rille opposite the landing site—that appeared to contain between eight and twelve sublayers in a thickness of eight metres. Although photographs from orbit have indicated that some other rilles show fairly well-defined shelves, Hadley rille was not previously known to contain such a feature. There was some discussion at the meeting about whether the sublayers represent separate flows of lava or differentiation within a single unit.

Markings on a large scale were prominent on several of the hills around the landing site. In particular the visible face of Mount Hadley has a grid of subhorizontal striations which are crossed by another grid of more steeply dipping markings. There seems to be a possibility that one set of markings represents fracturing in the rock, this pattern interacting with erosion of the surface material of the mountain to generate the second set of markings.

Apollo 15 was of course the first of the J series of missions carrying instrumentation that is more sophisticated than was possible on the early pathfinding flights. In particular the addition of the lunar rover allowed the astronauts to cover four times the distance that was possible for the crews of Apollos 11, 12 and 14 and to collect 78 kg of samples, compared with only 98 kg from the three previous missions put together. Colonel Alfred Worden, who was responsible for the command module while his colleagues were on the lunar surface, reported that the high precision mapping cameras that were carried for the first time on Apollo 15 were used to cover about eight per cent of the front surface of the Moon. From photographs taken from orbit of the landing craft with the lunar rover parked beside it, Worden estimated the mapping camera to have a resolution of better than 1 m. No doubt the output from the mapping camera will be valuable in the choice of a landing site for Apollo 17, the last of the Apollo missions in the foreseeable future.

The experiments left behind on the surface also seem to be functioning as anticipated; in particular the seismometer at last completes the triangle of stations that the lunar seismologists need to pinpoint the epicentres of moonquakes. One source that demonstrates activity associated with the perigee of the Moon's orbit around the Earth was reported to have been located to the south of the Apollo 12 and 14 landing sites.

Colonel Irwin also reported what amounted to a road test of the rover. It reached a maximum speed of 13 km hr^{-1}, well in excess of the expected maximum of 9.3 km hr^{-1}, and in fact he and Colonel Scott were able to average 9.6 km hr^{-1}. In spite of the initial difficulty the rover had a responsive steering, and Irwin was surprised at how well it climbed slopes where the dust layer was deep enough to make walking difficult.

The meeting at the Royal Astronomical Society, which had Professor Raymond Hide as chairman, was concerned with the temperature structure of the Moon. The approach taken by several speakers was to point out the limits on the thermal history of the Moon that can be set from different types of measurement.

Variability of OJ 287

THE way in which radiation from a quasar in different parts of the electromagnetic spectrum is related to one common source—if it is related to a common source at all—remains a mystery. One of the best ways to investigate such a relation is to study fluctuations at different wavelengths in the same source; recently, BL Lac, a possible quasar, has been studied in this way. Now, H. M. Dyck and his colleagues have studied the source OJ 287 in the 0.36 to 3.4 μm range, hoping to relate their observations to those at radio frequencies and in the optical part of the spectrum. In next Monday's *Nature Physical Science* Dyck *et al.* report observations carried out in September and October 1971 in order to determine the photographic magnitudes of the source.

These observations are suggestive of a power law spectrum with index close to one, consistent with other observations of quasars but rather flatter than the spectrum of the known large amplitude variable sources. It seems that OJ 287 is bright enough in the infrared for sufficiently accurate measurements to provide useful comparison with simultaneous observations at optical and radio wavelengths. In order to be useful, such observations must, of course, be carried out simultaneously, and Dyck *et al.* plan to make further photographic observations from January 3 to 26, 1972, when they hope that other observers will cooperate in a programme of observation at different wavelengths.