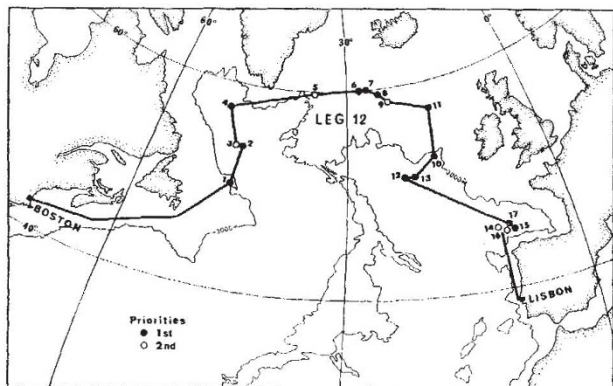


Even so the success of the Deep Sea Drilling Project (JOIDES) has been remarkable by any standards and must certainly be counted amongst the few great technical feats in the history of the Earth sciences. In eleven voyages *Glomar Challenger*, the ship equipped especially for the project, has drilled up to 3,000 feet into the ocean sediment cover well over one hundred times in the deep Atlantic and Pacific oceans, in many cases reaching the oldest sediment and the igneous rock beneath.

The result has been almost an embarrassment of riches. Measurement of the drill cores has confirmed directly the relative youth of the oceans, the validity of sea floor spreading and thus, by implication, continental drift. The oldest sediments (140 million years old) ever taken from the oceans have been sampled; oil and gas have been discovered for the first time under deep sea conditions; a complete, continuous geological column has been obtained, in aggregate, from Holocene to the Upper Cretaceous; and the major sound reflecting horizons (often chert) within the sediment have been identified. Indeed, the original eighteen-month scientific programme was so successful that the National Science Foundation, sponsor of the project, had no hesitation in extending it for a further 30 months.



Leg 12, which began when *Glomar Challenger* left Boston on June 17 (see map), will be different from previous voyages in several respects. For one thing the co-chief scientist, Dr Anthony S. Laughton of the National Institute of Oceanography, Godalming, Surrey, is the first from outside the USA. Four of the ten scientists involved are from Europe and two are from Canada; and the British and French scientists aboard have chosen many of the drilling sites in the North-East Atlantic. This will also be the first time that drilling has been carried out in latitudes as high as 60° N.

The prime scientific objective of the 30-month project extension is the investigation of the complex boundaries between ocean basins and continents. Leg 12 will accordingly concentrate on the continental margins around the Atlantic ocean and, in particular, submerged crustal blocks thought to be continental fragments. Particular attention will also be paid to the change in the spreading axis between Europe and North America thought to have occurred 60 to 70 million years ago. The deepening of the sea floor caused by such a change should have produced deep cold water circulation for the first time in the North

Atlantic and hence marked changes in the palaeontological characteristics of the sediments. The hiatus in sea floor spreading which probably lasted from 35 to 10 million years ago will also be investigated more closely in cores drilled from the Reykjanes Ridge to the south-west of Iceland. The voyage will conclude with drilling in the Bay of Biscay, where magnetic anomaly patterns are fan-shaped, in an attempt to determine whether the Iberian Peninsula really has rotated and, if so, when it happened.

SOYUZ-9

Per Ardua Ad Astra

from our Soviet Correspondent

THE return to Earth, after its record breaking 18-day flight, of Soyuz-9, has focused attention once again on what is now probably the Soviet Union's major immediate goal in space—the construction of an orbital station.

According to Ya. Tatskiv, deputy director of the Principal Astronomical Observatory of the Ukrainian Academy of Sciences, the projected station would not only be used, as has long been announced, to investigate natural resources and thus aid the better planning of the Soviet economy; it is now hoped that such a station could also be equipped as an astronomical observatory—a purpose which so far has been little stressed in public announcements.

As a step towards such a station, the long flight plan has a far greater significance than a mere record-breaking and headline-catching spectacular. One of the main purposes of the flight seems to have been a detailed series of physiological and psychological tests to investigate the effect of long exposure to weightlessness. The investigations included the study of the cardio-vascular system, special tests on the salt/water exchange of the body, which will serve as a basis for a further and more detailed study of the water/electrolyte balance, and studies of blood-pressure changes and energy consumption. Finally, and of considerable importance if the occupants of any such station are to be working scientists rather than human test animals, the current programme of tests investigated the effect of weightlessness on the muscle power of the hands and the contrast sensitivity of vision.

CANCER

Research Prevents Prevention

THE Women's National Cancer Control Campaign, a voluntary organization whose chief aim is to inform women of the benefits of the cervical smear test in the early detection of cervical cancer, is in danger of collapse through lack of funds. Unless £5,000 is immediately forthcoming the campaign, which was set up in 1965 and has helped persuade about 1,250,000 women a year to undergo examination, will have to close within the next two months.

About 16,500 women die each year in Britain from cancer of the cervix, breast and lung (the campaign encourages tests for the three forms of cancer) and it is estimated that at the moment early detection of