

## Petroleum and Gas

OIL AND GAS are found both in shallow coastal waters and in the deep sea. In 1958 the United Nations agreed that coastal nations could control the exploitation of non-renewable resources on their own continental shelves. This was good news for some nations. Canada, for example, has an enormous shelf — almost half its land mass is under the sea. Latin American nations also have huge shelves, some reaching out more than 200 miles. There are many resources on and over the shelves, including the salt in the water and the shells on the bottom, but the one of most significance today is, of course, oil. (Natural gas, though an important resource, will remain relatively less exploited until the regulated prices rise enough to make it economically attractive.)

Canada decided that only Canadian-incorporated companies could drill for oil off its coast and those that do must obtain exploration licenses, good for twelve years, and promise to spend specified sums in a specified time. (So far, companies have agreed to spend \$2 billion in the next ten years.) The company finding oil has drilling rights for half the field; the Canadian government has rights to the other half.

Ocean drilling is extremely expensive. The drilling platforms, each the height of a 28-storey building, are ships (though they look like no ships that ever sailed) resting on pontoons eighty feet deep. Each is attended constantly by an auxiliary ship, which circles it hour after hour, day after day, month after month, year after year. The platform is anchored to the bottom by a tube encasing a drill that bores down 500 feet below the ocean floor. The rigs are a marvel and a menace; one in the Gulf of Mexico spilled oil and did millions of dollars in damage in short order. Several others have caught fire.

Many coastal states — the developing countries in particular — wish to claim exclusive sovereign

rights in the management and harvest of all species within a defined zone off their coasts. (A zone of 200 miles was proposed by one group.) This approach goes further than the approaches described above, but it is not necessarily inconsistent with them. In the Canadian view, the establishment of such sovereign rights would not preclude foreign fishing in the area; the coastal states would simply have the right to control the methods used and the extent of operations.

As the oil seekers move into deeper waters, new technical and legal problems arise. When the 1958 Geneva Convention on the Continental Shelf recognized the right of coastal states to exploit their shelves it gave a very elastic definition of shelves. It said the inner edge of a shelf began where the "territorial" waters of a nation ended — which was less than precise since various nations claimed territorial waters extending anywhere from 200 to 300 miles. It offered two methods of fixing the shelf's outer limits: it ended either where the water had a depth of 200 meters or at greater depths where it was technically practicable to extract resources. The loose definition seemed to say that coastal states could extend their areas of interest whenever it became technically feasible.

In 1970 the UN General Assembly put an implied limitation on the expansion: resources from the area beyond coastal jurisdictions are to be the "common heritage of mankind." Landlocked countries, which understandably wish the "common" area to be as broad as possible, would end the coastal jurisdictions forty miles from shore. One group of nations with mixed interests has suggested that there be a 200-mile limit. Canada, a coastal nation with an enormous shelf, claims the entire continental margin — the rise and slope as well as the shelf.

## Minerals

AFTER THE FIRST WORLD WAR a German chemist, Fritz Haber, tried to extract gold from sea water to pay the German war debt. His ship, the *Meteor*, equipped with a laboratory and a filtration plant, crossed and re-crossed the Atlantic, sampling

water. Herr Haber found that he would need to fill and empty 200 tanks with water twice daily for a year to extract the \$93 million of gold he estimated to be dissolved in each cubic mile of sea water. The tanks would be 500 feet square