

LETTER FROM TOKYO



Ore search on land and in the ocean

**Resource-hungry Japan is
promoting exploration for
minerals in many areas**

by Stuart Griffin

The Japanese Government is busily pushing a two-pronged survey of submarine mineral resources in the Pacific Ocean, on one hand, and of mineral resources underground in Southeast Asian developing countries and elsewhere, on the other.

"We have a three-year plan in connection with the first aspect," says Raw Materials Resources Development Director Masamichi Ninagawa of the Ministry of International Trade and Industry, "and we have also decided upon positive efforts in assisting emerging Asian countries to exploit their domestic mineral deposits, for their and our advantage."

Surveys will be conducted in three Pacific Ocean regions: the area east of the Boso Peninsula in Chiba Prefecture near Tokyo, where a cluster of submarine mountains is located at a 17,500-foot depth; the region between Izu Islands and the Bonin Islands, also in Japan's distant homewaters, where the mountains are placed in a depth of from 6,500 to 9,500 feet; and the region off Kyushu—the main southwesternmost island—extending far south to Palau in the South Pacific, where the subsea mountain range exists at a depth of from 6,500 to 12,000 feet. All three surveys are to be completed by March 31, 1972.

Reports from previous surveys, by United States engineering consultants, point to a total of over 1,500,000 million tons of mineral suboceanic resources containing such components as manganese, nickel, cobalt and copper, with various mineral components believed to be forming at an annual rate of nearly 10 million tons.

"The mineral resources," says Japanese mineralogist Dr. Tatsuo Bessho, "are found in lumps the size of a baseball, and are found, moreover, half-exposed, on the red muddy bottom of the Pacific Ocean, easily reachable, unlike landbased ores which must be mined."

The Japanese have ventured out as far as the sea bottom off the coast of Mexico, through an oceanic resources survey mission sent out by the Japan Research Institute, a nonprofit organization. This group collected a ton of sea bottom, some 2,000 feet from the Mexican coast, at a depth of about 10,000 feet, and analyses by the ministry's Resources Research Institute and the Sumitomo Metal Industries Central Research Laboratory subsequently showed the samples contained about 27 percent manganese and lesser amounts of nickel, copper and cobalt.

The yield of mineral components was then estimated to be worth roughly

\$110 a ton. Still, Japanese are aware that knowledge of the existence of mineral resources at sea bottom and their development on a commercial basis constitute two different questions.

"We consider our survey program," says the Science and Technology Agency's Prof. Yasuichi Imai, "to mean only a significant step toward such possible commercialization, and we realize that a multitude of thorny problems lie ahead of us, technical and financial, before any success can be achieved."

The ministry is pushing "basic surveys," too, of mineral resources underground in a number of developing Southeast Asian states: explorations of prospective regions with the purpose of preparing systematic and detailed topographical and geological maps and charts indispensable for development.

The agency is "keenly aware of the absence of such scientifically worked out topographical and geological maps and charts" and says the lack "has delayed the work of resources development seriously."

It believes, in consequence, that as Director Ninagawa puts it, "the mineral resources in emerging neighborhood countries still, by and large, remain untapped."

Basic surveys are being programmed for these areas, with the help and consent of governments concerned: Sumatra and the western part of Kalimantan in Indonesia, the central part of Mindanao Island in the southern Philippines, the northern part of Peru, the northeastern part of Malaysia and the central region of Afghanistan.

The Tokyo Government is working out agreements with these countries.

The sites, ranging from 5,000 to 15,000 square meters in area, are believed to contain rich deposits of such metals as copper, lead, zinc, nickel, uranium, aluminum and tin.

Surveys, when authorized, will be made by private Japanese industrial firms, but with the Government sharing in expenses to a very substantial degree. The ultimate aim of assisting developing nations through such basic surveys will be to work, in the private sector primarily, on a company-to-company, or a company-to-government basis, mostly through joint development ventures.

"We hope," said Director Ninagawa, "to kill two birds with a single stone: to secure a badly needed and, above all, stabilized supply of raw minerals, and to promote economic cooperation with a number of fast-emerging friendly nations."