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* European Office: 22 Mulberry Walk, London, S.W.3, England (Telephone: 352-9749)

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EDITORIAL CORRESPONDENCE: 1515 Massachusetts Ave., NW, Washington, D.C. 20005. Phone: 202-387-7171. Cable: Advancesci, Washington. Copies of "Instructions for Contributors" can be obtained from the editorial office. See also page 7, *Science*, 4 July 1969. ADVERTISING CORRESPONDENCE: Rm. 1740, 11 W. 42 St., New York, N.Y. 10036. Phone: 212-PE-6-1858.

Russian Roulette?

Planet Earth, seen from space, appears as a fragile and limited life-supporting system in a vast emptiness. That such a view is, in fact, an accurate one is now more widely accepted than it was not long ago, before Earth's problems of overpopulation, overconsumption, limited resources, and environmental degradation attained the limelight. The danger is that a government and public now deluged by doomsday prophecies and bemused by equally confident reiterations that technology will cure all may hesitate in coming to grips with the problem, in the hope that, given time, it will go away.

A recent report by the Committee on Resources and Man of the National Academy of Sciences—National Research Council* may help to dispel such reservations. It provides perspective on the complex of problems centering on the earth's carrying capacity for people, with particular attention to the adequacy of resources. It discusses the interaction of production and consumption with population density, quality of life, and pollution. It stresses the indivisibility of the environment and the need to look at all contemplated actions (including no action) in the context of time, space, and ecologic consequences.

The report points to the hazards of relying on the sea as an infinite source of food and mineral resources, and on nuclear energy as the key to obtaining endless mineral resources from common rock. The sea, it concludes, is not likely to yield much more than about 150 million tons of food annually on a sustained basis—a good protein supplement, but wholly inadequate as a source of calories. The sea beyond the continental slopes and inland seas is unlikely to become a source of great mineral wealth—among other reasons because the young and sparsely metalliferous rocks of the deep ocean floor steadily disappear beneath the overriding continents with little opportunity for enrichment. Past relationships between energy input and metal production offer little hope that availability of large quantities of cheap energy can, of itself, much increase the production of metals from lean ores—bright though the expectations are for nuclear energy in terms of replacing and conserving the fossil fuels. Food and mineral production from the lands must continue to be the main source of supply, *supplemented* by production from the sea. Limits are hard to define but there can be no doubt that they exist. Only a certain quantity of food can be produced annually. Only so much in the way of mineral resources can be put into circulation and kept there. And the undesirable side effects, on the quality of environment and human life, of overproduction, improper distribution, and mismanaged waste disposal are now all too evident.

The central theme of the report is that both population control and better resource management are needed, and needed soon. In 26 recommendations the report stresses steps to assess and monitor the resources of the earth. It urges innovation, recycling of materials, evolution of resource policies, research related to understanding and management, and conservation programs for critical mineral resources in short supply.

In this context, population control becomes a key factor. One of the report's conclusions sums it up: "To delay progress toward full self-regulation of population size is to play 'Russian roulette' with the future of man."—PRESTON CLOUD, *Department of Geology, University of California, Los Angeles*

**Resources and Man* (Freeman, San Francisco, 1969); paperback, \$2.95. Members of the Committee are Marston Bates, John D. Chapman, Preston Cloud (chairman), Sterling B. Hendricks, M. King Hubbert, Nathan Keyfitz, Thomas S. Lovering, and William E. Ricker.