forces remaining after a nuclear exchange. Among the scientists and academic experts who have become involved on either side of the issue are Leon Gouré, of the University of Miami, Richard Garwin of the IBM Corporation, and Wolfgang Panofsky and Sidney Drell, both of the Stanford Linear Accelerator Center.

The Soviet civil defense issue, already controversial, shows signs of heating up in the next year. Those who feel the program is extensive, such as Jones, even predict the end of Western civilization. Says one official source, "We have accidentally discovered a vast effort to protect Soviet defense industry and an extraordinary effort to shelter their population. . . . In my judgment the U.S. strategic forces today are incapable of inflicting the levels of damage previously assumed by higher authorities in the United States."

But another official counters, "this whole thing has become a joke. The analysis just hasn't been done to justify any conclusions at all—let alone the end of civilization." On a more elevated plane, a secret interagency report concluded: "The recent study of Soviet civil defense has not revealed any major changes in the Soviet program since about 1971, nor does it suggest a crash program. Rather, the Soviets have been proceeding gradually but steadily to implement decisions evidently taken previously."

Apart from all the bickering, the problem seems to have caught the intelligence community napping. Several sources say that CIA, for example, has had only a few analysts studying Soviet civil defense on a part-time basis in recent

Briefing

Inequality the Main Cause of World Hunger

A revolutionary new view of the world food problem has been produced in that unrevolutionary organization, the World Bank.

An analysis* prepared by two World Bank economists, Shlomo Reutlinger and Marcelo Selowsky, arrives at the following conclusions:

- Previous studies have underestimated the extent of malnutrition by about 30 percent.
- When allowance is made for the uneven distribution of food between rich and poor, it is estimated that 75 percent of the population of underdeveloped countries (some 1030 million people) receive diets with less than the recommended number of calories.
- The extent of this deficiency amounts to 400 billion calories a day, the equivalent of 38 million tons of food grain a year. This is a mere 4 percent of the world's cereal production.
- In other words, it is not so much the absolute amount of food produced, as the way it is distributed among rich and poor, that is the main cause of malnutrition.
- Yet even if incomes in underdeveloped countries increase as projected, the poor will not be able to buy themselves a substantially better diet for the foreseeable future. Thus malnutrition will not disappear in the ordinary course of economic development, unless special steps are taken to address it.
- Such steps should consist of food stamp or income transfer programs directed to the hungry. The cost of food equivalent to the calorie deficit is only about $7 billion, but because of the difficulties of getting the food only to those who need it, much larger quantities would in fact be required.

The study was released last month to the sound of numerous disclaimers that the World Bank was responsible for anything in it that anyone might find controversial.

It is based not on any new data but a reinterpretation of old data. Previous surveys have taken the total calorie consumption of a country or region, and if it exceeded the minimum calorie requirement times the number of inhabitants, have assumed there was no hunger problem. The approach followed by Reutlinger and Selowsky is to assume that food within a country is distributed not according to need but according to income. They concede that their data, being based on a mathematical model, are only approximate.—N.W.

*_Malnutrition and Poverty_. Johns Hopkins University Press, Baltimore. $4.75.

Glomar Explorer Said Successful After All

Contrary to previous reports, the deep-sea salvage vessel *Glomar Explorer* succeeded in its mission to retrieve a foundered Russian submarine carrying nuclear weaponry. So says *Time* magazine on the basis of information attributed to a "senior U.S. Navy officer." The *Time* story, if true, corroborates what was already clear from study of the ship's operating manual, that previous accounts were full of inconsistencies, and that conceivably, "the *Glomar Explorer* has been declared surplus because she scooped up almost everything her designers intended her to garner" (*Science*, 25 June 1976).

When news of the *Glomar Explorer*'s venture first broke in March last year, most newspapers carried a version—almost certainly put out by the CIA—according to which the mission was a very limited success. The Russian submarine, as this version had it, was raised in one piece from a depth of 17,000 feet, but during the ascent two thirds of the wreck broke free of the *Explorer*'s grapple and plunged back to the ocean floor, never to be recovered. The piece that came up contained no missiles, no code room and no nuclear torpedoes—in fact nothing that might be the cause of public humiliation for the Russians.

The general thrust of this account has not been seriously challenged, although it was unlikely from the start that the Russian submarine would have survived intact its plummet to the bottom. The story seemed no more plausible in light of the facts in the *Explorer*'s operating manual, made available earlier this year as a part of the government's attempt to lease the ship. Neither the *Explorer* nor her associated barge could have accommodated the full length of the submarine. The whole system was custom-designed, as if the submarine was to be salvaged in pieces, of which the largest did not exceed the dimensions of the *Explorer*'s well or moon-pool. And the *Explorer* seems in fact to have spent enough time at the site, some 750 miles northwest of Oahu, Hawaii, to have sent its grapple on as many as five separate journeys to the bottom and back.

The *Time* story now reports that the "entire wreck . . . was recovered virtually intact," which is puzzling in that it implies the whole submarine was recovered in one piece. Be that as it may, the booty included "three SSN-5 surface-to-surface ballistic missiles armed with nuclear warheads and several torpedoes." There is no mention of what would have been an equally significant prize—the communications systems, code machines and ciphers. Also left hanging is the question of why we are being told all this now.

—N.W.