boosted by the construction of a giant pipeline between the Soviet Union and West Germany—will net a further $11.2 billion.

These export earnings will be essential to pay for grain, technology, and other goods from the West. (The bill for food imports alone is expected to reach about $12 billion this year, thanks to the third poor harvest in succession.) And an exportable surplus of oil is generally deemed to be a critical factor in the Soviet Union's economic relations with its satellites in Eastern Europe. The difference between the CIA's projection and that of the DIA is thus of more than passing interest.

In essence, the CIA argues that the Soviet Union is reaching the limits of its production technology, and output will drop as the drilling rigs move into more remote and more hostile areas. "Only the rapid discovery of very large amounts of oil can avert this outcome," the agency said last May. The DIA believes, however, that the Soviet Union already has the capacity to boost production above current levels at short notice. Moreover, while most analysts have pegged the U.S.S.R.'s proven reserves at between 60 and 70 billion barrels, the DIA says the figure is more like 80 to 85 billion barrels.

The DIA study says that other analysts have underestimated Soviet oil reserves because they have not taken into account the impact of recent increases in world oil prices. These have made it worthwhile to exploit oil fields that a few years ago were considered marginal and were thus not counted as reserves. In addition, DIA officials told the Joint Economic Committee that a major oil deposit discovered last year in western Siberia should be included. Known as the Salym field, it is expected to be in production in the late 1980's. As for evidence that the Soviets can step up current oil production, the DIA notes that last November they boosted output region by region in a test of production capacity. This indicated considerable flexibility. The study does not explain, however, why production levels have failed to meet targets in the past few years in spite of this reserve capacity.

The two projections have already sparked off a spirited debate among analysts of the Soviet oil industry. About the only conclusion that can be drawn at this point, however, is that neither should be relied on for strategic planning.—***Colin Norman***

House Bill Would Classify Much Computer Research

The Association of Computing Machinery (ACM) has passed a resolution objecting to H.R. 109—a bill that is an amendment to the Arms Export Control Act—and is encouraging other professional societies to join in its protests. According to the ACM's analysis, H.R. 109 would cause ideas relating to military hardware to be given a security classification until officially cleared by the government. These ideas would include research results on cryptography and very high-speed integrated circuits.

Peter Denning, president of the ACM, remarks that H.R. 109 has several unusual features. One of these is that "information . . . shall not be disclosed unless the Secretary of Defense, in consultation with the Secretary of State and Secretary of Energy, determines that withholding thereof is contrary to the national interest." This means, says Denning, that even harmless material would not be publishable unless publication could be shown to be beneficial to the nation. In contrast, other regulations controlling arms exports and the Invention Secrecy Act require that information be classified only if its publication would harm national security.

In addition, says Denning, the bill speaks of national interest rather than national security. Since the national interest includes foreign trade, the bill could allow the government to control publications on computer technology, for example, that might give an economic edge to competitors such as Japan.

In its resolution opposing H.R. 109, the ACM council says it "believes this bill threatens the free flow of ideas that has contributed to U.S. leadership in computing technology. It may encroach on First Amendment and other rights." The Computer Society of the Institute of Electrical and Electronics Engineers passed a resolution supporting the ACM, and the American Physical Society's president, Arthur Schawlow, sent a letter to the members of Association of American Universities informing them of the bill.

So far, H.R. 109, which Bennett introduced on 5 January 1981, has been sent to the House Foreign Affairs Subcommittee on International Security and Scientific Affairs, and the subcommittee has requested executive comment from the Departments of Defense, State, and Energy.

—***Gina Bari Kolata***

Mallinckrodt Money for Washington U

The chemical manufacturer, Mallinckrodt Inc., has awarded Washington University in St. Louis $3.88 million for hybridoma research. It joins the ranks of a host of other firms that are pouring research and development money into biotechnology research.

Under the terms of the agreement, the university scientists participating in the program will be free to publish their experimental findings and to exchange new cell lines and monoclonal antibodies with other researchers. A university spokesman said that manuscripts will probably be submitted to Mallinckrodt as a courtesy but emphasized that the company has no legal right to restrict publication.

Following the pattern of similar agreements between other schools and companies, Washington University will retain patent rights on any inventions and Mallinckrodt will have first option to license the patent exclusively. Royalties will be funneled back into education and research at the medical school.

The hybridoma research program will be headed by Joseph Davie, chairman of the department of microbiology and immunology. Studies will focus on areas including heart disease, cancer, blood clotting, and infectious diseases.

The spokesman said that the university is currently negotiating another biotechnology agreement with a second firm, but declined to reveal the company's name. He said that the Mallinckrodt agreement is the largest of its kind in hybridoma research.

—***Marjorie Sun***