production of the XM-1 should start as planned with the competition to take place later.

The Army announced Chrysler the winner over General Motors in November 1976, and awarded the company an initial \$4.7 billion contract to build more than 3000 tanks. The following month the Leopard 2AV started its tests at the Aberdeen Proving Ground. The chief of the German observing team said later that overall the tests were fair and equitable. But the tests were interpreted in different ways. According to the Army Materiel Systems Analysis Agency-regarded by the General Accounting Office as the most objective of any Army group-the Leopard and the Chrysler XM-1 proved "to be about equal in mobility and firepower, but the XM-1's armor protection was judged markedly better." The difference, in the agency's opinion, was due to the haste with which the Leopard's armor had been redesigned to U.S. requirements, and could with more time perhaps be eliminated. In short, there was little to choose between the two tanks.

In January 1977, however, only 3 weeks after the Leopard's tests had been finished, the United States announced that the competition between Leopard and the XM-1 would not continue any further. A report issued by the General Accounting Office report in November 1977 observed that "it might have been wiser" to make the Secretary of Defense's office, not the Army, the judge of the competition so as to assuage the concern that the Leopard would not receive fair consideration.

Standardization received another defeat this January when the Army announced the result of a second competition, that between American, German, and British tank guns. The Germans, expecting improvements in Soviet armor, have equipped the Leopard 2 with a smoothbore, 120-mm gun. The Americans, noting the increasing penetrative power of new ammunition, are equipping at least the first thousand XM-1's with the standard 105-mm gun. (Another reason for this decision may have been the Army's desire to stay within the 58-ton weight limit imposed by Congress.) The American thesis is that the 105-mm gun and improved ammunition will be able to defeat present and expected Soviet armor. Just in case this assumption should be wrong, the XM-1's turret ring has been designed so as to accept a 120-mm gun.

At tripartite shoot-outs held in 1976 and 1977, the 120-mm guns fielded by the Germans and the British performed bet-SCIENCE, VOL. 201, 14 JULY 1978 ter than the 105-mm gun. In the second shoot-out, there was little to choose between the two 120-mm guns but the German gun was selected in part because the Germans have the larger tank fleet.

Secretary of the Army Clifford Alexander has said that the German gun, to be built under license in the United States, will be fitted on later XM-1's. The decision has pleased the Germans but is a step backward for NATO standardization since American and German tanks are at present standardized on the 105-mm gun.

The attempt at cooperative tank production that began in 1963 will bear its fruits in the early 1980's when the XM-1's and Leopard 2's start to join their respective national tank fleets. The story cannot be said to have a wholly unhappy ending, since both promise to be outstanding tanks. There is also a fair measure of "interoperability" between them, a feature which some military experts regard as the only aspect of standardization which is really worth having. Meaning common use of consumables, interoperability in the case of the new tanks will probably extend to fuel, tracks, sprockets, and other spares, as well as to ammunition for XM-1's that have the 120-mm cannon.

An incidental advantage is that the Warsaw Pact has two different tanks to defeat instead of one. It is probably also true that the Leopard 2AV, and maybe the XM-1 as well, is a better tank than if the competition had never taken place. Competitive interaction among NATO allies has also ensured that the best de-



Photo by C. Holden

## **Seabrook Protesters Camp Out at NRC**

Hundreds of youthful members of the antinuclear movement surged into Washington last week to exert moral pressure on the Nuclear Regulatory Commission (NRC), which was expected to decide on 30 June whether to suspend the construction license for a nuclear power plant in Seabrook, New Hampshire, pending resolution of questions involving site selection and the adequacy of the plant's cooling system. Fifty-six protesters were arrested during a dramatic "die-in" that involved screaming and collapsing in a heap on the sidewalk.

Many of the protesters were fresh from a weekend camping out at the plant site in a peaceful demonstration that drew some 8000 people—which some claim is the largest demonstration so far in the nation's antinuclear movement. The Washington protest was organized by the Seabrook Natural Guard, an offshoot of the Clamshell Alliance, which is an umbrella organization for some 50 antinuclear groups.

After a rally featuring Daniel Ellsberg, about 100 of the visitors trooped over to the downtown NRC headquarters. There, equipped with sleeping bags, food, and placards, they settled down for a "nonviolent vigil" to await the Seabrook decision.

This spring has seen great sprouting of antinuclear demonstrations throughout the nation. One of the next items on the agenda is a cross-country bicycle ride, organized by the Solar Rollers of Amherst, Massachusetts, to Rocky Flats in Colorado, the center for the manufacture of plutonium for nuclear weapons. They plan to arrive by 6 August to commemorate the dropping of the first atom bombs on Hiroshima and Nagasaki.—C.H.