

tion of additional ICBM silos is not allowed.

Also, if a submarine has been built or modified to carry MIRV'ed missiles, it would be assumed that all submarines of that class are armed with MIRV's. The American Polaris submarines modified to carry the MIRV'ed Poseidon missile have a distinctive appearance; the new Trident submarine, which will also carry MIRV'ed missiles, will be huge and unmistakable.

The Soviets thus far have not built any MIRV'ed missiles for submarines. An impossible verification problem might arise if the Soviets ever built a MIRV'ed missile to fit the launch tubes of submarines now carrying missiles with single warheads. American negotiators presumably will seek guarantees against such an eventuality. In such a situation, collateral guarantees are essential; as Amron Katz of the Arms Control and Disarmament Agency has said, "finders" can be at an inherent disadvantage against resourceful "hidlers."

To take the standpoint of the Soviet negotiators at Geneva, they know that the MIRV'ed and un-MIRV'ed versions of the U.S. Minuteman missile fit into silos of the same size. They could see this as a factor complicating their verification efforts even though each Minuteman type does require distinctive, and visible, support equipment. Recently, the United States, after some hesitation, added another complicating factor by proceeding with deployment of 50 MIRV'ed Minuteman III missiles at Malstrom Air Force Base in Montana, the same installation where 150 un-MIRV'ed Minuteman II's will remain deployed.

Yet the decision to go on with the mixed deployment at Malstrom presumably signified that the Soviets were sounded out about it at Geneva and that they raised no strong objection. In addition, the Malstrom deployment clearly meant that the United States had abandoned a position which it seems to have unwittingly adopted earlier—namely, that, if any missiles at a particular installation were MIRV'ed, then all missiles there would be counted against the MIRV ceiling. Whatever else this peculiar episode signifies, it stands as further evidence that U.S. and Soviet confidence in their verification capabilities is strong enough to overcome problems that would probably have seemed insuperable even 5 years ago.

The trouble is, from the standpoint of all who lament the lack of progress in offensive arms reduction, verification thus far has been called upon only to police partial freezes and measured escalations. If verification is ever called upon to police reductions, its capabilities will inevitably undergo severe reappraisal by American and Russian military leaders worried that their opposites may cheat and get away

with it. This is so because, the smaller the forces deployed, the greater the possibility that successful cheating could be militarily significant.

But there is no doubt that, given appropriate collateral guarantees, verification capabilities will be good enough to allow substantial arms reductions if the U.S. and Soviet governments ever agree to get off the strategic arms escalator.

—LUTHER J. CARTER

## Harvard, MIT Face Limits to Growth

Harvard University and Massachusetts Institute of Technology are contemplating staff reductions next year as a means of trimming rapidly rising budget deficits. Both schools have dwindling special funds to cushion them, and the staff cuts being proposed are likely to be relatively small. But that such measures are being taken by these traditionally wealthy institutions is a grim indication of the problems facing science and engineering schools which are less well-off.

Department heads at Harvard's central graduate and undergraduate Faculty of Arts and Sciences have been ordered to reduce their teaching staffs for academic 1975-1976 by 3 to 4 percent from 1973-1974 levels, which would total a reduction of 15 to 19 people and approximately \$400,000. MIT, for its part, is reviewing all nonacademic activities to find projects it can reduce or eliminate. "We'll certainly end up with some staff reductions, since 75 percent of that budget is salaries," says MIT Chancellor Paul E. Gray. "But whether they will be achieved through layoffs or attrition we don't know."

Spokesmen at both schools say that inflation and rising energy costs, combined with the shrinking income from endowments and the inherent limits on raising tuition, mean that chronic gaps are developing between expenses and incomes.

Harvard's Faculty of Arts and Sciences, for example, has had deficits of \$100,000 or more per year since 1969 and has tightened its belt somewhat while covering the shortfall with funds from a special rainy day reserve, the Instructional Fund, set up during the prosperous 1960's. But a record deficit of \$1.7 million, expected for the academic year ending this June, led Dean Henry Rosovsky to report to the faculty that the series of deficits "has begun to assume the pattern of an upward spiral." He said previous attempts to economize had been inadequate and warned that "there can be no lingering doubt that considerable staff reductions are in the offing." The alternative of cutting salaries while maintaining staff levels, Rosovsky said, would make Harvard less competitive with other schools.

At MIT, the 1974-1975 deficit of \$6.6 million will be met this year with funds from the Research Reserve, a rainy day fund similar to Harvard's, and from other, miscellaneous sources of income. But in a series of briefings to the faculty last fall, Chancellor Gray warned that the long-term financial prospects for the institute could be grim. Even if MIT does not expand at all, it will continue to experience a gap between operating expenses and income which continues to grow by \$1.5 to \$2.5 million each year. "The problem is serious only if we don't do something about it," Gray told *Science*. "In a very few years we'd be having to deal with \$10 to \$15 million [in excess expenses] and that would be very serious." Hence the present review of the institute's support activities, which Gray says will be extended next year to a study of how the academic side can be more economical in the long term.—DEBORAH SHAPLEY