The ASP report did not find any significant difference in failure rates among different brands or types of reactors. It found that about 38 percent of all significant accident precursors involve human error. And it concluded that the WASH-1400 study, although unreliable in predicting large, complex failures, was fairly good in predicting the behavior of individual systems in the plant.

Officials in the NRC's risk analysis division say that while the ASP report is informative, it should be taken with a grain of salt. Many improvements in plant operation have been made since the Three Mile Island accident, and these are not reflected in the ASP data. A later report will look at events that occurred in 1980 and 1981.

—Eliot Marshall

Universities Seek Access to Big Number Crunchers

A group of eastern universities have joined forces to seek a solution to a common problem of lack of access to large-scale computing facilities. The institutions have formed themselves into a Consortium of Universities Concerned About Campus Computing (CU4C).*

Their concern is caused by the universities' inability to purchase state-of-the-art machines or afford commercial time-sharing in the so-called supercomputer category represented by the Cray-I and Cyber 205 computers.

A major aim of the consortium is to win federal support for the establishment of shared facilities for large-scale computing. A heavy initial investment would be necessary and plans call for operating costs to be paid by member universities diverting a percentage of their computing budgets to support of the central facility.

At a time when costs are dropping rapidly at the small end of the computing spectrum, the claim that leading research universities are computationally disadvantaged requires some perspective on conditions in the world of supercomputers.

Supercomputers are defined by their high speed and large memory capacity. As the performance of such machines has soared so has the price. Now, in the main, only national laboratories and industry are able to afford them. Robert McCrory of the University of Rochester, who is chairman of the consortium's interim executive committee, estimates that the cost of a supercomputer well suited for scientific computation would be about $12 million and the total cost of establishing a facility perhaps $16 million. Commercial time-sharing could cost as much as $5,000 to $10,000 an hour.

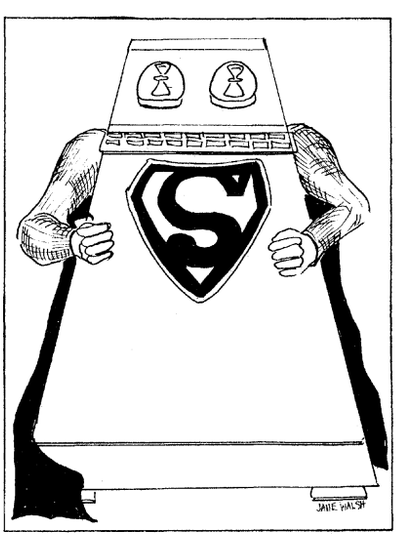
McCrory says that because of the universities' lack of access to such machines academic researchers can no longer compete to investigate important and interesting problems in a growing number of disciplines. Graduate students lack experience with the most advanced computers and require expensive and time-consuming computer education after getting their degrees.

The supercomputers valued for scientific work are particularly adapted to simulating the effects of the movement of fluids. McCrory says that such computers are useful for problems in fluid dynamics in general, in fields such as numerical weather prediction, physical oceanography, and theoretical astrophysics, as well as for studies of reactor safety or for reservoir modeling in petroleum engineering.

The decline in the universities' place in computing dates from the early 1970's. Until then, computer vendors offered universities discounts on mainframe computers, apparently on the theory that graduates would be favorably disposed toward products with which they were familiar. And the federal government through the 1960's had almost automatically underwritten university central computing facilities. Policy then changed on both vendor discounts and federal subsidies for computers. Research universities, unaccustomed to financing big computers, faced the heavy new demand just at a time when university budgets were coming under severe strain.

As a result, American universities lag behind in large-scale computing, McCrory says, while universities in Europe and Japan have long had access to shared facilities. He notes that Britain established centers in London, Manchester, and Edinburgh open to many users. The University of Bochum in Germany is another example of a university base for supercomputer resources. The idea is most advanced in Japan, says McCrory, where a computing center at Tokyo University has some 5000 users and by national policy "gets first crack at everything that's new."

The next step for the consortium, says McCrory, is to put together its own review of university needs. The organizational model favored by the consortium members is the associations formed by universities to enable them to participate in the management and scientific direction of national research facilities such as the major particle accelerators. Federal agencies and Congress, of course, would have to be convinced to create and maintain shared facilities. Those involved in the consortium are encouraged by activities such as a recent workshop on large-scale computing for science and engineering sponsored jointly by the Department of Defense and National Science Foundation and think that the funding agencies will be receptive. Concern about the emerging Japanese challenge in large-scale computers is thought likely to make Congress and the funding agencies willing to help strengthen university computer capacities. The CU4C hopes eventually to see regional facilities established for large-scale computing. Costs of creating such facilities on a national scale are estimated at $100 million over 5 years.***—John Walsh***



Jane Walsh

*Members of the new consortium are Brown, Carnegie-Mellon, City University of New York, Columbia, Cornell, Maryland, Penn State, Rochester, RPI, Rockefeller University, and Woods Hole Oceanographic Institution.