how well the medical schools are achieving their stated objectives, and the committee seems to be intent on instituting a formalized system of accountability.

Michigan Governor William G. Milliken, through his budget bureau, is taking a similar tack. This could, in the long run, have at least as heavy an impact on medical schools, since it is the governor and his budget advisors, after all, who make up the state budget in the first place. Michigan state government is moving to a new system of program budgeting. What this means in broad terms, says budget bureau director Charles Sturtz, is that attention is being shifted to program outputs from inputs. In the case of medical education, instead of looking, for example, at the number of first-year medical students or of degree credits being earned, an effort will be made to identify the numbers of physicians trained and the primary areas in which they can be expected to work. All institutions of higher education, including medical schools, have been told to gather information on a program basis, and this necessitates a kind of detailed reporting never before required of medical schools. Sturtz concedes that the system will take a few years to shake down.

At Lane's behest, however, the senators seem to be concentrating on the medical schools in the effort to elicit information on program effort. The appropriations committee has engaged KMB as its agent, and negotiations with the four medical schools have been going on since the spring. The schools are being asked to define their programs in detail, to categorize expenses and identify their sources of revenue, and to link both income and expenditures to particular programs.

The impression in the legislature this summer was that the four medical school deans had decided to hang together and were doing a bit of stonewalling. There are some understandable reasons for the lack of enthusiasm about the new requirements. The more demanding record-keeping and reporting involves costs and effort that might be expended elsewhere. Furthermore, the methodology for developing data is by no means at the finger tips of medical school administrators. It is notoriously difficult to separate the costs of particular aspects of medical education—teaching, research, and care. And in the past, at least, solvency could depend on not allocating costs too precisely. Then there is said to be conflict between the data requested by the governor's office and by the appropriations committee.

Even if the technical questions could be easily disposed of, there remains the more sensitive issue of what some university people see as an infringement of academic freedom. It is not a subject on which medical school or university officials expatiate to reporters—it would

Earthquake Accord and the Test Ban

American seismic devices will be placed on Soviet soil as part of an agreement on environmental research signed last month in Moscow. The purpose of the exchange is to further research on earthquake prediction, but because of the role of seismic measurements in discriminating between earthquakes and underground nuclear explosions, the agreement has raised flutters of excitement that it constitutes an inadvertent step toward cooperation on the means of verifying a test ban treaty. The significance of the agreement for this purpose seems likely, at most, to be indirect.

The agreement signed last month stipulates that Soviet scientists may set up and jointly operate seismic instruments on the San Andreas fault and Americans may do likewise in the Garm-Dushanbe region of the U.S.S.R., near Tashkent. The instruments the American team will station there have not yet been decided but may include tiltmeters, magnetometers, devices for recording the water level in boreholes, and possibly short period seismographs. Robert M. Hamilton, a Geological Survey geophysicist who coordinated the American proposals, says that these instruments, designed for earthquake prediction studies, would not be especially helpful in discriminating earthquakes from underground nuclear tests. A principal way this is done is by comparing the long period surface waves and short period body waves generated by an event, but there are no plans to install a long period seismograph on Soviet territory, even if the Russians would allow it. The purpose of the agreement as Hamilton sees it is to benefit from the Russians' longer experience with earthquake prediction and to open up a dialogue. "If things become too misunderstood a really worthwhile scientific exchange could be jeopardized," he says.

Earthquake prediction, one of 11 subject areas in the environmental agreement, was a topic included at the suggestion of Gordon J. F. MacDonald, then a member of the Council on Environmental Quality. MacDonald, a geophysicist and former member of the President's Science Advisory Committee, says that neither side mentioned the possible relevance of earthquake prediction to underground test detection. But he considers the agreement as "a step in the direction in which one might conduct broader kinds of seismic research relevant to verification."

Placement of American scientists and instruments on Soviet soil is a "minor policy breakthrough," as MacDonald describes it, but is unlikely to reveal any information about Soviet nuclear tests that is not available by other means. It has been pointed out that the intended site for the U.S. station, in the Pamir mountains of Tadzhikistan, is only 900 miles southwest of the Soviet test site near Semipalatinsk. It is also only 300 miles north of Kabul, in Afghanistan, where American seismographs are presumably sited. The station on Soviet soil "would make a difference you could stick on a gnat's eyelash," says a White House official.

The negotiations on a complete test ban treaty became stalled in 1963 on the issue of on-site inspections. Since then, the United States has proposed an exchange of seismic research information as a way of resolving the disagreement, while the Soviet Union has contended that existing detection methods were adequate to police a ban. Exchange of information on earthquake prediction could develop into a discussion on methods of detecting underground nuclear explosions. Even so, detection is not by any means the only obstacle to a test ban treaty.—N.W.