natural gas containing more than 0.01% helium. This rather severe definition is being relaxed to gain more support for the bill. The bill would also set up a national Helium Reserve. The companies transporting or selling the natural gas would be responsible for the extraction of the helium, and the Federal government would bear the costs of storage and transportation from the wellhead to the national storage facility.

The distribution of the costs of extraction, transportation and storage also came under sharp criticism at the hearings and may be changed before the bill is sent for a vote on the House floor. Of course, as one Energy and Power subcommittee staffer said, ultimately it is the public who will bear the burden of a helium conservation program, either through higher taxes or higher gas prices or both, and at issue is really whether it is more equitable to have the taxpaying public or the gas-consuming public pay for it. Finally, H.R. 2620 takes responsibility for helium conservation away from the Bureau of Mines and puts it in the hands of the Secretary of Energy.

Opposition to the bill. For H.R. 2620 to succeed, it will have to overcome several obstacles, including the positions of the Bureau of Mines, the DOE and the private gas companies, and Congressional apathy. For a large part of the Congress, helium conservation is an unknown issue and one too esoteric to spend a large sum of money on.

The Bureau of Mines has taken the position that we may be on the verge of discovering a major new helium deposit at the Tip Top gas field in Wyoming, which could, by itself, provide all the helium we need for the forseeable future. Tip Top is Federally owned land that is being leased to Mobil Gas Co. for natural gas production. Though tests on the field are incomplete, current estimates of helium content range from about 3 BCF to a high of 80 BCF. The Bureau says that until we know what is available at Tip Top (probably by 1981), any helium-conservation legislation is premature. The Dingell subcommittee has assumed a "better safe than sorry" attitude.

The Bureau also says that the estimates of helium demand 50 years hence are too speculative to justify a costly conservation program, given present surpluses.

What the Bureau seems to favor over a new Federal helium conservation program is adjusting the economics of helium conservation to encourage private industries to do their own conserving, Ray Munnerlyn, Bureau of Mines helium division chief, told PHYSICS TODAY. This might include tax incentives for helium conservation, he said.

The DOE, like the Bureau, is not convinced of the necessity of helium to the quality of life in the next century and is reluctant to take on any costly new program, especially one that will not pay off for 30 years. The Office of Management and Budget requires that DOE analyze all potential programs by discounting all perceived benefits at the rate of 10% per year to determine the present value of future benefits. Subjected to this sort of economic analysis, a helium conservation program cannot be justified, according to the DOE. "The timing and use of these [helium] technologies is uncertain," George McIsaac, who was at the time Assistant Secretary for Resource Applications, told the Subcommittee. "Therefore we do not believe it prudent, in the face of such unpredictable demand, to fund an extensive helium storage program now." DOE, he said, favors relying on current stores, underdeveloped or undisclosed reserves and atmospheric helium. McIsaac, who recently resigned from the DOE, points out, for example, that the cost of operating a fusion reactor using atmospheric helium is only slightly higher than the cost of running a reactor using helium from natural gas.

DOE Under Secretary John Deutch says that McIsaac "is properly representing the Administration position." However, Deutch told us that he personally has "a good deal of sympathy for helium-conservation legislation."

(Presidential science adviser Frank Press recently requested that the Cryogenic Society of America, which held a meeting in October on helium, provide him with a statement of recommendations on the helium problem.)

Private gas companies are still licking their wounds from the last Federal helium conservation program, and with some of their breach of contract suits still being fought in the court, they are reluctant to renew a partnership with the Federal government.

F. C. Nicholson, a gas-industry consultant, recommends that we be content with the helium-extraction plants now in existence. Several such plants, he points out, were constructed in the 1960's to meet Federal demand but were closed in the early 1970's when the government's conservation program was terminated.

Nicholson also disagrees with the philosophy of the bill. "H.R. 2620 makes helium conservation the gas companies' problem instead of the government's problem," he said.

Another bill addressing the problem of helium conservation, H.R. 2523, was proposed in the House Interior and Insular Affairs Committee by Keith Sebelius (R-Kans.), but has not progressed as far as H.R. 2620. H.R. 2523 amends the 1960 Helium Act to give Congress control over the government's 36-BCF helium stockpile, rather than the Administration, which now controls it. It would also require any private company seeking a license to mine natural gas to report the helium content of the gas field so that a determination can be made on extraction of the helium.

Neither H.R. 2620 nor H.R. 2523 may pass in this Congress, and the Senate has not even taken up the issue yet. But both Dingell and Sebelius intend to continue their efforts to conserve helium when Congress convenes in January. —MEJ

New UN fund for technology transfer

Negotiators from 137 countries met in Vienna in August and recommended the establishment of a fund for strengthening the indigenous scientific and technological capabilities of the world's developing countries. The delegates were attending the much-anticipated United Nations Conference on Science and Technology for Development. The developing countries, numbering more than 120 though referring to themselves as the "Group of 77," came to the conference seeking $2 billion per year for scientific and technological development by 1985, partly funded by an automatic tax on the industrialized nations. They eventually settled, however, for an interim counterproposal offered by the developed nations to be funded out of voluntary contributions from the North and the South, as the developed and developing nations are informally called.

The compromise proposal would provide $250 million for a two-year period starting in either 1980 or 1981, to be managed by the United Nations Development Program. During this two-year period a study will be conducted to determine the best long-term arrangements for the fund. The study will look into developing countries' needs and the possibility of converting the short-term voluntary fund into a long-term commitment from the industrial world for a larger sum of money.

Some have their doubts that two years will be enough time to establish a permanent funding and administrative organization. "Two years is a very short time for the UN to react to anything," former National Academy of Sciences president Frederick Seitz told PHYSICS TODAY. "I suspect that we will find a stringing out of this short-term decision, with more money, into the 1980's until things get sorted out." Seitz was a member of the US delegation to UNCSTD as one of the scientific advisers.

The delegates also agreed to establish a new Intergovernmental Committee on Science and Technology for Development, open to all UN member states and reporting to the UN General Assembly through the Economic and Social Council (ECOSOC). This would replace the old Committee on Science and Technology

At the United Nations Conference on Science and Technology for Development, delegates agreed to establish a new international fund to be used to support scientific and technological activities in developing nations that will expedite their development. (United Nations photograph.)

for Development, which was essentially a subcommittee of ECOSOC. ECOSOC will not have the power to censor reports of the new intergovernmental committee, but will be able to add its own comments to them before it passes them on to the General Assembly.

Before either the interim fund or the intergovernmental committee is implemented, the General Assembly will have to approve them, presumably while it is in session this fall. Though the General Assembly could, theoretically, reject the recommendations or add to them, most observers do not expect either to happen, since the nations making up the General Assembly are essentially the same as those as the UNCSTD meeting.

The politicization of the scientific issues forced some of the American observers to question the South's motivations. IBM's Lewis Branscomb told us, "In the working groups I was in, the delegates from the developing countries were really in agreement with those from developed countries on what made sense and what didn't, but you couldn't persuade them to change the language of the draft report . . . they were perfectly content, it seems to me, to come out of that meeting with a document containing a great deal of unresolved language, and that was preferable on their part to negotiating a compromise language that represented the greatest possible degree of agreement." Political victories thus seemed more meaningful to the Group of 77 than substantive achievements.

Because it was made clear well before the start of UNCSTD that it was to be a political, rather than technical, meeting, scientists decided to hold a meeting of the UN Advisory Committee on the Applications of Science and Technology during the week preceding UNCSTD. 300 scientists, engineers and physicians attended the ACAST colloquium and produced a report that was then presented to the delegates at UNCSTD. The ACAST report identified problem areas to which science and technology could be applied on an international scale, including health care, energy, food production, industrialization, illiteracy and ecology. The Group of 77 was unwilling to lend official UNCSTD blessing to the ACAST report by including it in the final UNCSTD document.

One issue raised at UNCSTD but not agreed upon was the South's desire for "free" access to the North's base of technological knowledge without deference to property rights. Branscomb drew three conclusions from the South's negotiations at UNCSTD: "First of all, this conference tells us that the developing countries are quite serious about the importance of technology, but not very serious about science. They are very serious about the importance of technology in their own economic well-being. Second, they acknowledge the developed countries and the transnational corporations as some major sources of that technology. And third, they choose to make effective means of availing themselves of it, at less cost, a principal subject of future UN debate."

The amount of money each country is willing to donate to the new fund will be announced at a pledging session next year. In the US, that fund may be competing for Congressional generosity in a time of tight budgets with the on-again, off-again Institute for Scientific and Technological Cooperation. ISTC was temporarily rejected during its authorization process, but was eventually authorized $23.75 million for new initiatives and was to take over about $60 million worth of programs now operated by the Agency for International Development. But none of this money has been appropriated by Congress as of this writing, weeks after the start of the fiscal year in which ISTC was to have started. ISTC and the new interim fund are expected to serve complementary functions, with the former focusing on cooperative programs and the latter devoted to building up scientific infrastructures in the developing countries.

Several of the American scientists who attended UNCSTD agree that the most important aspects of the meeting were those peripheral to the main negotiations. "It really was like a lot of professional meetings," Rodney Nichols, executive vice president of Rockefeller University and a member of both ACAST and the US delegation, told us. "The main values are intangible, technical opportunities that open up informally, people touching bases, extending acquaintances, building a kind of consensus about what can be done and how soon it is feasible."

Several others feel that the real importance of UNCSTD is in the prominence it has given the subject in the UN. "It was generally recognized three or four years ago, when the meeting was being planned, that the meeting itself was not as important as the process leading up to it," Branscomb told us. "UNCSTD was designed as the culminating event in a process which included every country writing a paper on how they use or plan to use science and technology in their own development or in assisting developing countries to develop, and there were a lot of preparatory conferences organized . . . As far as the conference itself was concerned, it has to be regarded as one more event in a very complex UN political process." —MEJ

Johnson and Klemperer are NSF nominees

President Carter has nominated two men to be assistant directors of the National Science Foundation. Francis S. Johnson, a professor of natural sciences at the University of Texas at Dallas, will head the Directorate for Astronomical, Atmospheric, Earth and Ocean Sciences, and William Klemperer, a professor of chemistry at Harvard University, will head the Directorate for Mathematical and Physical Sciences, subject to Senate confirmation.

Johnson replaces John B. Slaughter, who will become Academic Vice President and Provost at Washington State University, and Klemperer replaces James A. Krumhansl, who has returned to Cornell University, where he is a professor of physics.

Johnson earned his PhD from UCLA in 1958. He worked as a physicist at the Naval Research Laboratory from 1946 to 1955 and then as a space physicist at the Lockheed Missiles and Space Company.