Goedeke argued that we must develop the breeder reactor in order not to lose our technological supremacy to countries such as West Germany, France and Great Britain. Stalos, on the other hand, described the breeder reactor as "a multibillion dollar boondoggle."

Another area of general agreement among this group of candidates is the role solar and other alternative energy sources should play in our future. Goedeke commented that "solar power will not be able to replace nuclear power as a base power load source, but could be an efficient source of secondary power." Likewise, Harris called the use of solar energy to supplement nuclear energy, "a very logical blend."

R&D. The problem of funding basic research was another issue raised. All of the candidates queried were concerned about the movement in government toward being increasingly cautious with money for research and development. Hutchings observed that one "can almost mark the beginning of the recession with the cutoff of R&D money by the Nixon administration in 1969." Harris is concerned that what he calls the "Proxmire syndrome" (named for Wisconsin Democratic senator William Proxmire, who popularized criticism of basic research with his "Golden Fleece Awards") may be spreading through the Congress. "... Congress wants to put money into payoffs that will result in a dramatic result within the lifetime of the member of Congress. Congressmen want results which they can point to with pride; they want to have their picture taken in front of some gadget or symbol of construction and say, 'Look what I did!' I think that psychology is very negative." Martin criticized this attitude during last spring's NSF authorization debate (on the House floor), when he urged the members to be careful not to abolish fundamental studies in favor of practical applied research, saying that it was not the place of Congress to oversee research, only to exercise fiscal restraint. Goedeke proposed maintaining a fixed percentage of our national budget for basic research with additional appropriations for major programs which stand on their own merits. But he cautions, "... a fixed percentage of the national budget for basic research would only make sense if Federal agencies responsible for spending that money have the public's interest in mind ... The one thing we cannot afford [to do] is turn our scientific community into a 'welfare state.'" Berg believes that "we would be far better off directing funds through universities and private institutions ... rather than building more governmental labs." Emery feels that "we don't do a very good job of coordinating research efforts. There is not enough cross-talk between universities and industry. We have to encourage cross-pollination." But, he adds, "This is something we cannot do with legislation."

We also brought up the problem of declining industrial innovation. Here, again, there was general agreement. Hudspeth said, "I think this is largely a matter of government policy toward taxation of capital gains and limitations on writeoff of losses on speculative new ventures." Others felt that it wasn't so much a question of money as one of excessive regulation. Goedeke made this point in saying that "It is government that curtails the incentive for business to be more innovative. Unless we begin to remove government regulations and restrictions from industry, our inflationary problem will continue to worsen and our advances in technology will diminish ... When elected, I will draft legislation which will make it a requirement of every Federal agency to determine the economic impact of every new Federal regulation on business and industry, and to determine the benefit-to-cost ratio." Berg has had personal experience with this problem: "I work for 3M. We have actually had to hire more people to provide paperwork to meet government regulations than we are actually adding on to our research staff. In other words, part of our budget is being burned up on staff functions which are not producing new science, technology or products."

Most of the candidates agreed that the scientific community is underrepresented in the Congress. How well this group of candidates fares in the November elections may well determine whether or not this situation will improve. —MEJ

Field heads NAS study of astronomy, astrophysics

The National Academy of Sciences has asked George Field, director of the Harvard–Smithsonian Center for Astrophysics, to head a two-year survey of astronomy and astrophysics for the 1980's. This appointment was made in anticipation that the National Science Foundation and the National Aeronautics and Space Administration would shortly make a formal request to the Academy to carry out such a study.

The new survey would be the first discipline-wide study of astronomy and astrophysics since the NAS–NRC Astronomy Survey Committee, headed by Jesse L. Greenstein (Caltech), made its report in 1972.

Field has written to 200 astronomers outlining his preliminary plans and asking for suggestions. This fall a group of astronomers will meet to discuss how the survey will be carried out, specify the kinds of questions to be addressed, set up and schedule the necessary panels, and nominate members.

Field told PHYSICS TODAY that the survey committee would, among other tasks,

- review the effect of the Greenstein report on the development of astronomy and astrophysics in the 1970's;
- examine the implications of post-1972 scientific, technological and management advances on the development of astronomy and astrophysics in the 1980's;
- assess to what degree current facilities and resources are able to address the scientific problems of the 1980's and determine what new facilities will be needed, and
- assign relative priorities for the various programs and facilities recommended by the survey committee.

Field told us that he estimates that the two-year study will cost approximately $400 000, with equal support from NSF and NASA. He expects that these agencies will make their official funding decisions sometime this fall. —CBW

Galt panel on basic research

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fields such as man-made high-energy neutrinos, spin-aligned hydrogen and the physics of ultra sub-micron devices (20 to 1000 Å).

Increased funding would also enable DOD to revitalize more easily its ties with universities and bring in new performers. Galt told PHYSICS TODAY that "We recognize the difficulties involved in funding a new performer at the expense of a tried and tested individual who has done excellent work and is still doing so, and who is older. When your funds are limited enough, that bind becomes terribly difficult to deal with. As you get more funding, that new money must be used to a significant extent to bring in new performers. You must look at your age and experience distributions and be sure that you're not coming to a time when all of your first-class people are going to disappear on you at once."

Clarification of policy. The panel observed that both within and without DOD there are many differing perceptions of the department's current policy toward basic research. The variation has resulted from such things as differing responses to the tight budgets of the past decade in a large, complex department and differing interpretations of the Mansfield amendment. The Secretary of Defense should dispel the confusion, the panel urged, by declaring "his own interest in basic research, his desire for a new surge of technological innovation in DOD, and his policy on the interpretation and application of such topics as relevance." The panel is certain that Brown's scientific credentials—he is a PhD physicist—"would bring to the policy unprecedented weight in both the technical and operational communities of the Department and to the scientific and engineering communities throughout the country."

No such direct statement has as yet