

Vietnam war policy among natural scientists, 67% calling either for an immediate unilateral withdrawal or for the reduction of US involvement. Of the physicists, 70% felt that the police did not "act reasonably in curbing the demonstrations at the (1968) Democratic Convention," as compared with 59% in mathematics and 41% in civil engineering. The legalization of marijuana was endorsed by 40% of the physics faculty, more than in any other natural science.

As to the reasons behind the liberal tendency of physicists, Ladd and Lipset hypothesize that the most liberal fields are the ones that emphasize the importance of creativity, originality and innovation. They say that "intellectuals are more likely than others to be partisans of the ideal and thus to criticize reality from this standpoint."

Another factor that Ladd and Lipset cite to explain the liberalism of physicists "involves the uses to which knowledge in a given discipline is put and the resultant contacts with groups" and outside interests. Since physics is largely apart from the business world, its practitioners are likely to be more liberal in their politics, they assert. The survey showed that 2% of physics faculty members had received support from private industry during the year previous to the survey, while 10% of the chemistry faculty had received such support.

Asked whether he thought that their liberalism might fade with the recent funding cuts and perhaps a greater dependence among physicists on industry for funding, Lipset told PHYSICS TODAY, "I don't think they would be affected by the so-called practicalities—it has more to do with the kind of people that are involved. I think that there are general attitudes that you find among scientists and intellectuals that would not really change over money."

One subgroup the authors investigated consisted of the more successful and eminent faculty members. They defined two groups, *achievers*—those who had published ten or more professional works in the two years preceding the survey and who held positions at elite universities (defined by SAT scores and funding levels) and *consultants*—who had been paid consultants to any agency of the federal government in the year preceding the survey.

Ladd and Lipset found that "in all disciplines, achievers are much more liberal in their views than the rank and file and consultants somewhat more liberal." In physics, 81% of the achievers opposed Administration policies in Vietnam, compared to 67% of the rank and file. Over two-thirds of the physics achievers (68%) approved the emergence of "radical student activism," while only 48% of the total physics fac-



LADD

ulty held that position. Only 20% of physicist achievers approved of classified weapons research on campus as compared to 31% of all of the physics faculty.

The differences between the achievers and the rank and file are even more surprising when the ages of the groups are taken into account, because it is usually assumed that the young are most liberal. Only 2% of the physics achievers are under 30 compared to 15% for the physics faculty at large. By any measure of success and eminence chosen, Ladd and Lipset found that "the most successful, highly achieving or influential faculty are more critical and left-of-center politically than is the general professoriat."

Among the social makeup of the physics faculty, the survey showed that 26% came from families with the father



LIPSET

in a high status job, a percentage topped only by medicine and geology in the natural sciences and engineering. A question on religion showed that 14% of physicists are from Jewish background, 60% Protestant, 14% Catholic, 5% "other" and 7% none.

Lipset told PHYSICS TODAY that unfortunately the questionnaire used in the Carnegie survey did not permit distinguishing theoretical physicists from experimental physicists. He said that he hoped that in the future someone would be able to survey some of the differences between them since it appears clear that there are variations in their political leanings. "In general," he told us, "those who do theoretical work in different fields appear more likely to support more 'idealistic' or even 'extreme' variants of political thought."

—SMH

Protesters harass Jason physicists

Members of the Jason group in the Institute for Defense Analyses have recently been the targets of considerable protest. In Paris this June, protesters forced the cancellation of a physics lecture by Murray Gell-Mann (who has been on sabbatical from Cal Tech). The following month in Rome and in Corsica the same thing happened to Sidney Drell (who was on sabbatical from SLAC). Meanwhile in the US, five members of Jason at Columbia University have been the subject of many protest leaflets (which Jason members say contain lies and distortions), including some that were distributed at the homes of Henry Foley and Malvin Ruderman.

Jason is a brain trust of about 35 people, almost all of whom are physicists. As individuals under Jason auspices, they work on problems of national interest, which they themselves select. Most of their activity is in defense problems, but they also handle prob-

lems from the Department of Transportation, the Office of Science and Technology, and so on. In the Pentagon papers, a study group under Jason auspices is reported to have condemned the bombing of North Vietnam and to have recommended as an alternative an electronic anti-infiltration barrier. Some Jason members have been active in giving Congressional testimony on defense or civil technology—some agreeing and some disagreeing with the official government position. Drell and others have contributed to studies in support of the SALT agreement. Another Jason member, Richard Garwin, has been outspoken in his opposition to the American supersonic transport.

As reported in *Science*, when Gell-Mann appeared to give the third of a series of four lectures at the College de France in Paris, he was questioned by a group calling themselves the "Collectif Intersyndical Universitaire d'Orsay

Vietnam-Laos-Cambodge." The group asked about his role in Jason and about the bombing of dikes. Gell-Mann is reported to have said he had come to discuss physics and not Indo-China; he then gave his planned lecture. The following day the demonstration occurred again, but this time, according to French newspaper accounts, Gell-Mann was escorted to the street by administrators from the college.

At the Institute Guglielmo Marconi at the University of Rome, in the beginning of July, Drell was to give a theoretical-physics seminar. A group of demonstrators demanded that Drell denounce US policy in Vietnam and discuss and denounce his role in Jason. Drell refused, but for ten minutes he discussed Jason and giving advice to the government; after that the demonstrators left and Drell began his physics lecture. About 15 minutes later a larger group, employing a bullhorn, returned and protested much more intensively; so Drell simply gathered up his papers and left.

Three weeks later Drell and two other physicists were to lecture on quantum electrodynamics at the summer school of the Institut d'Etudes Scientifiques de Cargèse in Corsica. It was the last week of a four-week summer school, which was attended by 25-30 students plus faculty. Again Drell was asked to denounce his participation in Jason and to condemn publicly "American war crimes." Drell refused, offering instead to discuss Jason with the students any

time after giving his first physics lecture. This offer was rejected, and then Drell asked those who wanted him to start lecturing to stand. Only about five students rose, and Maurice Levy, director of the institute, said that if Drell could not talk the school would terminate. Levy then gave the students until noon the next day to find a way to let Drell give his physics lectures. Efforts to resolve the conflict failed and the school ended a week early.

At Columbia a campaign against the Jason group is being conducted by the New York SESP group, according to Foley. Since March, every Wednesday the group has been picketing the front door of the Pupin physics building and handing out literature. Foley told us that at the end of April, when many US campuses were in turmoil, the SESP group, together with a group of faculty members from other New York colleges, occupied Pupin for four days. Things then quieted down. In June Ruderman's apartment house in Greenwich Village was picketed by demonstrators who handed out literature about his involvement in Jason. In August demonstrators held a 24-hour vigil at Foley's apartment house in Manhattan; as a result, he says, he received a couple of poison-pen letters. The other Columbia members of Jason, Norman Christ, Garwin and Leon Lederman, do not live in Manhattan. Foley says the object of the SESP action is to force the Jason members to resign. —GBL

1971-72 financial year the Harwell and Culham (fusion) laboratories of the UKAEA received a total of £6.1 million for research not directly oriented towards nuclear reactors; £2.5 million came from industry and the remainder from the government. In the present financial year the comparable figures are £7.4 million total, with £3 million from industry, and in 1973-74 the income from industry is expected to be £3.4 million. So the share from industry has been rising, and by 1975 it is expected to amount to about 50% of the total nonreactor research funds. Work on reactors and what is called "underlying research" directed towards reactors is separately funded by direct government grant. In 1971-72 this reactor research accounted for about 55% of the total income of the laboratory from all sources.

Because of the general economic depression in the UK, Harwell's work for industry has not increased as fast in the last 12 months as had been hoped. Marshall thinks there are signs that it's beginning to pick up again, but he has a slight worry that his plans depend on a return of confidence in the British industrial scene. "If that turns sour, we might find ourselves in some difficulty." The contracts are not limited to British industry—a few are from abroad, and there have been "lively discussions" with some US firms—but foreign support is as yet a small part of the total.

In terms of manpower, the size of the Harwell laboratory is still decreasing, as it has every year since 1962. Whether that trend can be reversed depends on whether the industrial-contract work can grow at a rate large enough to offset the rundown in reactor research. Marshall hopes it can; he points out that if you have a continuous decrease over a period of a decade you start getting age imbalances, and the overall health of the organization suffers. Here again he is supported by the Rothschild Report, which maintains that the size of an establishment should vary depending on the demands of the program, not upon political judgments. While admitting that the laboratory is not compensating for all its "wastage"—retirements and resignations—Marshall says he is recruiting "at a modest level, and a substantial fraction of that level consists of Britishers who wish to return to this country from America."

We asked what exciting physics research was in progress at Harwell. Marshall listed several topics, including Mössbauer work on biological compounds, surface phenomena over a wide area of science, catalytic phenomena observed with electron microscopes, laser-scattering investigations of turbulence, and ultrasonic holography.

Congress increases NSF funds for 1973

Congress has appropriated \$619 million plus \$7 million in foreign currency for the National Science Foundation for fiscal year 1973. More funds have been given for some education programs than the administration had asked for, and the overall program received more than the requested \$647.418 million plus \$7 million in foreign currency.

The \$619-million sum is the same amount as was appropriated for FY 1972, but funds that had been impounded by the Office of Management and Budget in FY 1971 and FY 1972 because of the Administration's wish to cut back on spending for education and for institutional support of science were freed for FY 1973. These funds together with the foreign currency bring the total NSF funding up to \$657.2 million. Of the freed funds, \$9.5 million from FY 1971 and \$21.7 million from FY 1972 may be used for any part of the NSF program.

For the third year in a row, Congress has granted more money than that requested by the Administration for education programs. NSF had asked for \$12 million for the Institutional Im-

provement for Science program, but Congress instructed NSF to spend at least \$18 million, down \$3 million from the FY 1972 level. An increase of \$6 million over the requested funding level was also ordered for graduate-student support, bringing it to \$20 million, the same amount allotted in FY 1972. Congress added \$1.0 million to the \$70 million requested for the Science Education Improvement Program, a total of \$71.0 million, \$4.9 million more than in FY 1972. —SMH

Harwell

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ful in answering these critics. Harwell was in fact already operating very closely in accordance with various recommendations of the Rothschild Report.

A second problem was that of persuading British industry to accept the idea and come forward with ideas and projects. Marshall knew in 1968 that there was not a good tradition in the UK of industry placing contracts for extramural research, but he thought this tradition could be broken. Events appear to be proving him right. In the