

COMMITTEE ON OPPORTUNITIES PRESENTS PROFILE OF MEMBERSHIP TO COUNCIL

A new profile of The American Physical Society's membership reveals that the society has become considerably more diverse in recent decades. The profile was prepared by a subcommittee of the APS Committee on Opportunities in Physics.

In preparing the profile, COP worked closely with the AIP Education and Employment Statistics Division, which provided it with data from surveys and publications. The statistics division does a biennial survey of the member societies, in which it polls 10–16% of the membership and extracts data thought to be of general interest. What the COP subcommittee did was examine the AIP data more closely for information of special interest to APS members. The statistics division also provided the subcommittee with data from the National Academy of Sciences covering all physicists.

Traditionally, the typical APS member was thought to be in academia, dividing time between teaching and basic research. One of the most surprising facts revealed in the profile is that the traditional image applies to less than half of the present membership of approximately 40 000. In fact, if one excludes graduate students, 58% of the APS members surveyed work outside of academia, primarily in industry (31%), but with significant percentages in government and at federally funded research and development centers. Academia, however, is still the largest single employment category.

Only half of those surveyed mainly do basic research (30%) or teach (20%), while 21% report that most of their work is in applied research. Because of the ready applicability of physics and the adaptability of physicists, many APS members have ended up a long way from their original research interests. Nearly a fifth of those surveyed are primarily administrators, and a tenth are mostly

involved in design, development and engineering. In fact, NAS data show that of the major scientific fields, physics and astronomy retain the lowest percentage of doctoral scientists. Less than 60% of physics and astronomy PhDs remain in their respective degree fields, compared with 82%—the highest rate—in Earth and environmental sciences.

The movement of physicists out of traditional activities is mirrored by the movement of other scientists into physics-related work. When asked to identify themselves professionally, only three APS members out of four call themselves physicists. Engineers and chemists each make up 10% of the rest, with the remaining 7% in other fields.

Nine out of ten APS members have doctorates, and the COP profile presents information on their employment in 1985 as a function of the year the degree was granted. Among those who received degrees prior to 1965, 54% were employed in academia, 21% in industry and 25% in other

areas. For those who received PhDs only a few years later, in the years from 1971 to 1973, employment in 1985 was distributed almost evenly among the three areas. The statistics for those who got doctorates between the early 1970s and early 1980s show employment in industry and in academia increasing gradually in tandem and the percentage in other areas dropping off sharply. The data may understate employment in academia because they exclude postdocs on the ground that they are in employment transition.

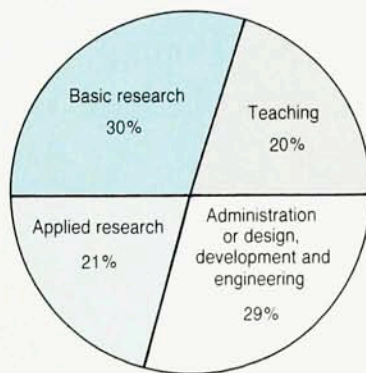
Data from the NAS for all physicists indicate that from 1973 through 1985, the ratio of PhD physicists in academia to those in industry declined from about 1.8 to about 1.2. The academia-to-industry ratio may swing back upward again in the next ten years as older physicists retire and academic career paths become more attractive to younger physicists.

The average age for all PhD-holding APS members is 45. The average age in industry is 42 and in academia, 47. A related and worrisome statistic extracted from the NAS data for all physics PhDs is that the median age of the university population is going up at a rate of six-sevenths of a year per year.

Women account for about 5% of the physics work force, and this proportion is more or less the same for each major category of employer. But the figure is somewhat higher at four-year colleges and somewhat lower at universities.

Israel S. Jacobs of General Electric, a prime mover behind the COP study, reported on the findings to the APS council at its Crystal City, Virginia, meeting this past January. His report emphasized the importance of attracting women and minorities into physics to ensure an adequate supply of physicists for the future.

The full report by COP will be printed in a future APS *Bulletin*. ■



Only half of APS members are primarily engaged in basic research or teaching, traditionally regarded as their typical activities. According to 1985 survey data, half are now involved mainly in applied research, administration, or design, development and engineering.