Meetings

Women in Science: Symposium and Job Mart

Women scientists attending the symposium and job mart were told that 50 percent of the 1968 University of California graduates in physics, mathematics, and chemistry, and 4½ percent of the general population of the Bay area were unemployed. The symposium, held at the University of California, Berkeley, 22 November 1969, was cosponsored by Hydrogen (Bay area) Chapter of Iota Sigma Pi, national honorary chemistry society for women, and the regional office of the Women's Bureau, U.S. Department of Labor. Speakers and a panel of scientists from industry and the universities examined the economic problems and minority position of women scientists and gave advice to the "science dropout." Participants demanded that industry and universities accommodate women scientists with families by creating part-time, two-slot jobs. The job mart seemed to fill a requirement for a regional, multidisciplinary employment center and could be used as a model for other parts of the country.

James Neto, job market analyst for the California State Department of Human Resources Development (employment), stated that unemployment in the Bay area began to rise in 1967, reached 4½ percent in June 1969, and may be up to 5½ percent by June 1970. Cutbacks occurred in weapons, aerospace, and NASA contracts. The closing of the Navy's research facilities at Hunter's Point with a dismissal of 300 civilian jobholders including approximately 60 Ph.D.'s is an example of the stretchout on federal funds for medical and scientific research.

Thus job opportunities in the sciences are down in the Bay area, but the Gulf Coast and southern California are harder hit. Nevertheless, he insisted that California, which now employs 220,000 engineers and scientists, 13 percent of the nation's total, will have 50,000 new jobs for engineers and "close to 20,000 jobs for scientists" by 1975. Neto advised that job seekers with master's or bachelor's degrees look for quality-control jobs in industry, but women with rare specialties or seeking high-level positions may have to go out of state. Medical research and construction engineering are exceptions.

Thomas A. O'Brien, head of technical placement for the University of California Placement Service, pointed out that half of the 1968 graduates in chemistry, mathematics, and physics were still unemployed 1 year later. Of 76 new Ph.D.'s in chemistry, only 32 had jobs in industry or postdoctoral appointments. Organic and physical chemists and theoretical and high-energy physicists were having the greatest difficulty. O'Brien suggested that fluctuations in the demand for research scientists could be offset by programs of federal research spending, computed from a stable base line and augmented by estimates of gross national product.

Retrospectively the Placement Center could point to early indications of a decline in the job market. First, summer employment for undergraduates weakened, then all women graduates and men trained in the humanities had difficulty finding a job. Finally, the older alumnus who is beyond training age, generally 30 years, felt the pressure. Unfortunately these weather vanes of job-market decline were not perceived in time or numbers to be useful forecasters.

Women more than men feel the effects of the declining demand for teachers and researchers at the university level; this fact is more apparent in the humanities than in the sciences. O'Brien said, "Locating a teaching position is probably the most difficult for the graduate with a master's degree seeking a post at any of the area's 2-year colleges. Surprisingly, the situation is not much better for the candidate who has made the effort to obtain a teaching credential and who now wishes to teach at the grade school or high school level. For the first time in my experience, there is no longer a shortage of teachers in the Bay area."

Women scientists seeking a job in industry were advised that the Bay area is a desirable environment and employment is highly competitive. Pay rates will be higher in other parts of the country. There are few research-oriented corporations in the West and fewer home offices in the Bay area where women, such as mathematical analysts and programers, whose training prepares them for corporate staff functions find their best employment opportunities.

Mrs. Elizabeth Duncan Koontz, director of the Women's Bureau, pointed out that at one time women spun cloth, cooked over a wood stove, and grew the vegetables. Now the pill and legalized abortion, packaged foods, gas, and electric heat remove the conditions for assigning a fixed role to women in a traditional society. She noted that the male attitude seems to be that women will work for less and probably are worth less. Women, subjected to wage discrimination, offered $2000 to $4000 less with the same qualifications, "must coordinate their efforts to remove barriers of discrimination, (for) we cannot expect the men to make the changes."

Pioneering institutions like the Radcliffe Institute may be a partial solution to the social and psychological barriers for women in science, according to Dr. Martha S. White, social psychologist in the Adult Development Program, University of California, San Francisco Medical Center. The Institute supports part-time scholars, women who take time out for marriage and child rearing, but who face special problems of self-identity if they attempt to maintain professional competence and productivity. The Institute provides funds for domestic or child care help, a place to work, and access to the library and intellectual resources of the Harvard-Radcliffe community.

Sponsorship and protégé systems influence the commitment of the scholar to her profession, strengthen her professional identity and affect her recognition. "Whether a woman is sponsored . . . will determine who reads her work, listens to her reports, or even offers friendly comments on a draft." Isolated scholars may miss socialization into their profession and may be excluded thereby from all-important channels of

communication. "Women are reluctant to put themselves forward or to protest being left out. It is a vicious circle: men indifferent or unaware of excluding women; women insecure and hesitant of intruding. The remedy is not necessarily more individual boldness, but must include new institutional arrangements and programs which do not depend on individual initiative."

If a woman drops out of scientific pursuits to raise a family, how does she get back in, what courses can she take, what aid is industry prepared to give her? Undergraduate training, retraining of the "science dropout," and work patterns were topics considered by June Andersen, doctoral candidate in genetics, Stanford University; Doris Howes Calloway, professor of Nutritional Sciences, University of California; Edwin M. Kinderman, Stanford Research Institute; Allen Nixon, Shell Development Company; J. N. Ospenson, Chevron Chemical Company; Elizabeth Scott, professor and chairman, Department of Statistics, University of California; Robert Seiwald, professor and chairman, Department of Chemistry, University of San Francisco; and N. F. Goldsmith, Kaiser Foundation Research Institute.

Dr. Calloway noted that women are a minority group in science and should prepare themselves as undergraduates with ancillary marketable skills such as data retrieval or data processing. Dr. Seiwald presented the special case of a man's university for the first time opening its doors to women, a reverse discrimination in favor of women. Women students are as apt as men, but are less inclined to go on to graduate schools. New graduates were advised by Dr. Kinderman to abandon the attitude that only basic research requires the highest skills.

Programs in continuing education and updating of skills are designed to cover new advances for the practicing professional. The medical schools and the California Medical Association, the American Chemical Society, and the University of California Extension offer refresher courses. Closed-circuit television courses from the Stanford School of Engineering are taken for credit by employees in various Bay area corporations and industries. Chevron pays an 80 percent refund to employees who complete graduate courses in chemistry or mathematics.

But women professionals seeking reentry were offered little encouragement. Dr. Ospenson commented, "If you dropped out of science for the last 10 or 15 years, you are practically a complete neophyte. You will recognize not a single one of the instruments used daily." A physical chemist out of the laboratory for 4 years was advised that retraining in analytic chemistry requires 1 year, and in solid-state physics, 4 years. However, Dr. Nixon, chairman of the Employment Committee of the California Section of the American Chemical Society (ACS), suggested that ACS might look into retraining courses for women chemists.

If retraining is necessary, job lists at the national and regional specialty meetings will indicate what skills are in demand. Several speakers recommended a shift to pollution research, computer sciences, or to secondary school education; but there is no guarantee that the middle-aged can make these transitions or that they will find jobs after training. Converting research scientists to science teachers may succeed only in producing poor teachers. That women reenter professional life by volunteering their services, suggested by two speakers, was labeled slavery by one panelist and an unacceptable donation by an employer.

Women who plan, in spite of the hazards, to drop out of their studies were advised by Mrs. Andersen to think early about reentry and to seek sponsors. "Never leave a gap behind you. If you leave school, tell the professors why you are leaving. Ask for letters of recommendation at that time when they know you. When you are ready to go on to your next position or apply to the next school, you have a letter of recommendation from a recognized professor in your field." She called on universities and industry to "design part-time programs for women who are unable to devote full time to their careers for a few years."

Dr. Lelia Coyne, University of California (from the floor): "The alternative to dropping out altogether is to have special positions available for which women have a priority"; she proposed two persons in a single job. This is a difficult proposition at most universities where a certain number of tenured positions are allotted each department. Two people in the same slot are regarded as a danger to tenure although the device has been used in special instances for men. Objections were raised that the two-slot job would cost industry more for insurance, bookkeeping and fringe benefits. "Industry expects more than its dollar's worth out of scientists, and it is hard enough for full-time scientists to keep up," said a panelist. Nixon replied to the women, "Your problem is not whether it (the two-person job) is better, but how to persuade industry to accept it."

Three work patterns for women in the sciences emerged. Women seem to benefit from protective structures such as the Radcliffe Institute. An Office of Women's Affairs proposed at Stanford would enable women to take part-time internships, residencies, or research positions in the medical sciences. The majority of the participants seemed to favor part-time employment. Discussion of the third work pattern, that of the top faculty or management executive, revealed a long-term source of friction.

Women, unlike the racial minorities, are diminishing in numbers and influence on the campuses. Rural-urban population shifts and increased support for men receiving university training contribute to the trend, but women professionals, traditionally in nutrition, education, library science, and nursing, are being displaced in administration and on the faculties. One result, according to Dr. Scott, is that few models remain of the woman who combines a career and homemaking. A survey of women graduate students at the University of California showed that discrimination is practiced covertly by some science departments which have not one woman faculty member and few women graduate students. The humanities and language faculties may have 80 percent women undergraduates, half that number in graduate school, and women faculty essentially zero.

Men and women receive identical education at the universities, but industrial firms are not willing to continue training women for executive skills (Calloway). Ospenson insisted that there was no discrimination against persons of equal talent but there was a dearth of candidates; only three Ph.D. women were interviewed in the last 5 years. If 15 people are considered, the chances are that the woman won't get the job. Kinderman stated that at Stanford Research Institute, 1226 men and 176 women were on the professional and research staffs. The women comprised one-third of the mathematicians and programers, one out of 58 physicists, but there were 228 men in management positions and no women.

At a 3-hour job mart, registrants

were interviewed for 445 positions listed by 25 corporations. Candidates for graduate school appointments could obtain information from university representatives. Half the registrants were seniors and recent graduates; the remainder were women scientists, newcomers to the area or recently out of a job, and "science dropouts," women who had been raising a family for 10 or 15 years and who wanted advice and aid to return to scientific pursuits. Job listings were sought in the fields of biology, chemistry, engineering, mathematics, physics, and statistics. Salaries ranged from $450 for literature research to $1833 for an adhesive chemist in the Bay area, and $2417 for an immunopharmacologist in an eastern city. Employers included the major research establishments of the Bay area, the medical schools in San Francisco and Palo Alto, electronic and computer industries of the Peninsula and San Jose, construction engineers in Oakland, and petrochemical and biological laboratories of the East Bay and Livermore.

In spite of the Endicott tabulations (*1*) showing that nationwide, the average starting salaries for women in 1969 were equal to the starting salaries of their male colleagues in 1968, employers at the job mart stated that the women would receive the same salaries as men.

Only a small percent of the jobs listed were filled. The poor success rate was due in large part to the economic squeeze referred to earlier. For example, three research jobs and a faculty appointment listed in August by a marine station had disappeared by November. Second, the jobs and job seekers were not well matched. Thirty-five percent of the listings called for physicists and mathematicians, 30 percent for engineers, computer specialists and programers, 29 percent for chemists and biochemists, and 5 percent for biologists. The mix of specialists seeking jobs included chemists and biochemists (45 percent), botanists, biologists, and zoologists (40 percent), and the remainder trained in nutrition, medicine, or nursing. There were no mathematicians, physicists, or statisticians. Employers stated that many application blanks were not returned, but one job seeker explained that it seemed useless to spend 1 to 2 hours filling out a form when there was no commitment from the employer.

The job roundup during a time of restricted opportunities was an obvious

benefit to the job seeker, but the employers also recommended that the mart be repeated since there is now no continuing local mechanism by which they can fill employment vacancies. In California, employment agencies charge placement fees up to one-half of the first month's salary. In many cases, the employer pays the fee, but this has not protected him against rapid turnover in low-paying jobs. State and private employment agencies and the university placement services offer partial solutions. For the small industrial employer with a local job that suddenly becomes vacant, for the job candidate who cannot attend the national meetings, for the graduate of a small college, or for the newcomer without a car in a region where the jobs may be 60 miles apart, for all of these, the establishment of a regional employment center by the specialty organizations or honorary scientific societies would help to solve a problem that threatens to get worse before it gets better.

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Reference

1. F. S. Endicott, *Trends in Employment of College and University Graduates in Business and Industry* (Professional Development Committee, American Society for Personnel Administration, Berea, Ohio, 1968).

Courses

Electron Microscopy in the Biological Sciences, Boston, Mass., 14–26 June 1970 and 18–29 January 1971. An intensive program in the preparation of biological materials as electron microscope specimens, electron microscopy, and interpretation of the results. Designed for doctoral-level investigators who wish to use the electron microscope in their research, but who have little or no experience in the field. Advanced graduate students will be considered. Limited to 12 students. (Prof. Clifford F. Youse, Center for Continuing Education, Northeastern University, 360 Huntington Ave., Boston, Mass. 02115)

Drug Problems, Portland, Ore., 17–21 Aug. Fundamental aspects of drug problems will be reviewed and will include the historical, socio-cultural, medical, and economic aspects of the drug problem. Interdisciplinary sessions will stimulate exchange and exploration of information and techniques between interest groups concerning drugs and drug-related problems. Group sessions will provide an opportunity for individuals with special interests, backgrounds, and/or professional training to discuss drug use, misuse, and abuse as it pertains to their career activities. Credit is offered. *Fee*: $55. (Registration Service, Western Institute of Drug