

DUAL-CAREER COUPLES AND SCIENCE: OPPORTUNITIES, CHALLENGES AND STRATEGIES

By C. Susan Weiler and Paul H. Yancey

If science is to be considered a viable dual-career option, perceptions and attitudes about the compatibility of family and science career must change.

COMBINING MARRIAGE and career has traditionally been considered an advantage for men and a problem for women. Yet, it is today a mistake to view dual-career couples in this light. Society is increasingly accepting women in the workforce, couples are having fewer children and sharing more responsibilities, and employers are increasingly faced with the task of recruiting and accommodating both men and women who are making career decisions constrained by family priorities and who do not wish to follow traditional career paths. The rapidity of these transformations has left individuals, institutions and society unprepared to cope with the ramifications.

The proportion of dual-career couples is increasing in virtually all fields, and couples experience similar constraints regardless of career type. However, this phenomenon is of particular importance in the sciences. Demographic trends, projected demands, the decline in science interest among white males, and the historic lack of participation by females and minorities has created a "national need" to increase science interest among all segments of the U.S. population (National Science Board, 1986; Widnall, 1988). The barriers to single women, single parents, and dual-career couples in the sciences may make recruitment difficult. As we will discuss, individuals, institutions, and the scientific community will need to change if science careers are to be more compatible with family for both men and women.

Rather than treating this as a "problem," we suggest that these societal changes provide an underappreciated opportunity to attract more talented people into science fields. Furthermore, those institutions which most rapidly respond to the needs of dual-career couples will have an advantage in the recruitment and retention of personnel.

Perceptions About Household Responsibility

The fact that there have been and are so few successful married female scientists is often used to support the conjecture that household duties and a scientific career are not compatible, except for martyrs or geniuses. However, the historical record demonstrates that family in and of itself has not been

the major barrier for women; perceptions and discrimination have been greater obstacles (Rossiter, 1982; Abir-Am and Outram, 1987; Cole and Zuckerman, 1987). For instance, even when women were considered for positions, institutions (including the women's colleges) for many years hired only single women and required them to resign if and when they married because the conflict was considered too great for anyone to manage. Although the rules have changed, the attitude persists. Because women have traditionally been responsible for most household and child care, the burden of this perception has discouraged girls from pursuing mathematics and science courses providing the necessary background for careers and has made it more difficult for women to pursue science careers once trained. Today, the trend towards household equity means that some men are now also victims of societal and professional perceptions.

The fact is that most women today work and for many reasons have fewer children than previously. Furthermore, men are taking a more active role in household maintenance and child rearing. Although it is more difficult to balance family and career than career alone, particularly when children are involved, it is by no means impossible for scientists or for other professionals.

If science is to be considered a viable dual-career option, perceptions and attitudes about the compatibility of family and science career must change. The decision to combine family with career is a personal one, and professional attitudes should not limit those men and women who choose to do so; indeed, their efforts should be supported. It is doubtful that perceptions will change without strong leadership within institutions and the scientific community, and successful and highly visible dual-career role models at all educational and professional levels.

Time Constraints and Conflicts

In 1885, mathematician Sofia Kovalevskaja wrote to a friend, "All these stupid but unpostponable everyday affairs are a serious test of my patience, and I begin to understand why men treasure good, practical housewives so highly. Were I a man, I'd choose myself a beautiful little housewife who'd free me from all this" (Koblitz, 1987). Kovalevskaja's senti-

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ment is still expressed today; the difference is that increasingly both men and women are longing for someone to fulfill the role of a traditional housewife! In 1987, 65% of women with children under eighteen were working (vs. 8.6% in 1949), and 60% of working men are presently married to women with outside jobs (Galinsky and Stein, 1989). Time allocation and too much to do are often considered the greatest disadvantages of dual-career relationships (Weishaar *et al.*, 1984).

The daily conflicts alluded to by Kovalevskaia are experienced by virtually all dual-career couples. Nussbaum (1986) has compared the modern dilemma of having to choose between conflicting family and career responsibilities with the Greek tragedy *Agamemnon*, in which "a previously guiltless man" is placed "in a situation in which there is open to him no guilt-free course." One cannot always unambiguously rank family and career priorities. Any action may have undesirable consequences for family or career; conflict and stress are sure to result.

If dual-career couples are to be retained in professional careers, relief from this burden must be achieved. This will in part require a greater willingness by men to share household duties. Although the highest of current estimates for men's contribution to household work is only 10.5 hours per week, compared with approximately 35 hours per week for working women (Cowan, 1983), their share is increasing and will help somewhat to alleviate the tremendous burden now carried by women. But as their hours increase, men are also experiencing family and career time conflicts. While outside help with cooking, cleaning and child care can be obtained, institutional assistance is also required.

Institutional assistance is particularly important in science fields; experiments must generally run to completion once started, and field work in remote locations is sometimes required. The difficulties can be lessened by a willingness on the part of institutions and funding agencies to provide more salary support for technicians during child-rearing years. High-quality and affordable day care is a particularly critical issue. Unless couples with children can juggle work schedules in a way that enables one or the other parent to be with a dependent child, outside help with child care is needed. In many cases, the lack of part-time and extended-leave options means that many parents who would prefer to stay home with their small children cannot. Yet convenient, high-quality day care is often unavailable even to the dual-career couples who can most afford it (Galinsky and Stein, 1989). If parents are forced to choose between career and family due to the unavailability of satisfactory child care, many if not most will choose to quit work. Furthermore, women will probably continue to be more likely than men to drop out for family reasons. The loss of talented scientists, particularly women scientists, is something that academia, industry and society cannot afford.

On-site and subsidized child care are effective

ways to increase the availability and affordability of child care, and also to increase work productivity (less stress and fewer lost hours). The recent concern about child care at the national level and the increase in the number of institutions providing on-site child care are welcome signs that the situation is improving.

Science Ethos

But a different tactic may be equally important: a change in the science ethos. One definition of ethos is "the moral factor which influences a man's actions." Virtually all professions were determined in times dominated by men, in particular those with a wife who stayed home to do the housework and childrearing. Women have consequently had difficulties penetrating the upper strata of the professions (Rossiter, 1982; Kahler, 1988; Schwartz, 1989), and men who share household and family responsibilities are also experiencing difficulties.

The science ethos is particularly rigid. It is essentially that of "a construction of life around the pillar of work" (Rayman and Burbage, 1989): a twenty-four-hour per day commitment, a perception that successful science cannot be done part-time. It is difficult, if not impossible, to move up the career ladder if one even temporarily steps off or adjusts a work schedule for family reasons. The family role has changed for both men and women, yet the expectation of a full-time commitment has not.

In light of their increasing participation, women and men with working spouses should be given the opportunity to redefine the science ethos. We do not expect the ethos to change drastically, nor should it change much if science in this country is to remain at the cutting edge. At least during the most critical child-rearing years, flexibility that would not seriously impair the progress of science seems possible. Schwartz (1989) points out that even if a woman drops out entirely for five years when her children are small, she would still work thirty-eight years compared with the typical man's forty-three. There is no reason this small difference should limit a parent throughout his or her professional life. Schwartz has been criticized for limiting her argument to women, and care must be taken to ensure that policies do not become "mommy tracks" (Ehrlich, 1989). Specifically, both partners should have the option to "detour" and then return to the "fast track;" and attitudes must make the transition possible. It is doubtful that many women or men will be able to reenter science after a lengthy and complete absence, even with reentry programs (Rossi, 1965). Therefore, it is particularly important in the sciences that high-status, part-time positions be available.

The federal government has developed policies to facilitate employees' care of both dependent children and elders through generous leave programs, workforce re-entry provisions, flexible and compressed work schedules, and permanent part-time employment options (U.S. Office of Personnel Management, 1988). On-site day care, split posi-

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tions, part-time positions, and stop-the-clock tenure policies are becoming more common in academia. Industry has also begun to respond to the challenge (Galinsky and Stein, 1989). All institutions should consider whether these and other options could be increased.

Presently, in the few situations where the above options are available, persons using them are either expected to produce as if working full-time, or they are dismissed as dilettantes. Recognition and promotion expectations should be prorated to the portion of time worked; after all, quality should be more important than quantity. The community should consider whether the long hours and intolerance of part-time work are really necessary for all scientists (regardless of gender) and at all stages.

Job Procurement

A fourth challenge for the dual-career couple is the limitation imposed by the desire to find two satisfying jobs within a reasonable commuting distance. Almost four-fifths of the married women in the Cole and Zuckerman (1987) study were married to scientists, a proportion they considered typical. Thus, dual-career couples with a female scientist are generally faced with the task of finding two scientific jobs within a reasonable commute. This is often a more difficult task for Ph.D.'s than other professionals.

The difficulty is compounded by the reluctance of most institutions to hire couples or accommodate spouses. Indeed, traditional barriers for married women have often been replaced with hidden nepotism rules which make it difficult to obtain two jobs at the same institution. Unless a position can be negotiated at the time of the primary candidate's hiring, the trailing academic spouse (usually the woman) is generally left to campaign by herself for a position that she is fully qualified for at an institution which will not consider her because she is already there, and/or because of her spouse's affiliation.

Individuals suffer when satisfactory jobs cannot be obtained for both partners, and institutions suffer when qualified individuals turn down or quit jobs due to lack of opportunities for their spouse. No one wishes to hire a less qualified individual to accommodate the primary candidate. At the same time, however, spouses should not be penalized because of their marital status; institutions should develop policies to ensure equal consideration when employment options are available.

A recent study by Pennsylvania State University concluded that when a dual-career family relocated (generally for the husband's job), the trailing partner usually suffered a career setback: the setback generally takes years to overcome, and may be permanent. Corporations are increasingly trying to accommodate dual-career couples (Galinsky and Stein, 1989), and some universities are following the trend (University of Wisconsin, 1988). Institutions generally concentrate on referral programs to facilitate consideration of the trailing partner by nearby employers.

While referral services may work for some individuals and in large metropolitan areas, they may not be adequate in all localities, in small fields such as oceanography, or for academic spouses; the spouse's institution may represent the only professional employment option. The situation is particularly difficult for scientists, who generally require access to laboratory space and equipment.

If the trailing partner is not to be permanently left in a position with low pay, prestige and promotion potential, a long-term position with institutional support and recognition must be available. A split position is one solution for couples in the same field. In addition to "flexible" positions such as split and part-time tenure-track appointments, academia is beginning to use more creative options such as "floating" positions (designated pool of positions which are assigned to individuals rather than departments and are returned to a central pool) and "pre-fills" (hiring candidates before a regular tenure-track position opens up). While these strategies are more often used at present to recruit women and minority candidates, they can also be used to attract and retain dual-career couples (University of Wisconsin, 1988).

The recent breakthroughs in telecommunication provide greater opportunity for individuals to work at home and from remote locations. If employers are willing to utilize this technology to its full potential, individuals will have greater flexibility in work hours and fewer restrictions on employment locations than ever before; and employers will have access to a greater applicant pool.

Continued Discrimination Against Women

Finally, all of the issues discussed above are compounded for women by the discriminatory pattern of hiring, salary, tenure and other "microinequities" (Webster, 1989). Despite years of affirmative action and articulation of the problem, female Ph.D.'s obtain tenure-track positions and tenure at a much lower percentage than men, and are paid 5-18% lower salaries than men with comparable experience (Rayman and Burbage, 1989). Balancing career and family is difficult in any case; lack of equal treatment makes it far more difficult for women to succeed than men. The trend in female representation in the sciences to date is not encouraging; only 15% of U.S. scientists are female, compared with 44% for the national workforce as a whole (National Science Foundation, 1988). Presently only 10% of the oceanography faculty at the major oceanographic institutions are women, although this number should increase (currently 30% of oceanography graduate students are women, compared with about 20% in 1980 and even fewer in 1970) (Nowell and Hollister, 1988). The importance of appropriate female and dual-career role models cannot be overstated; it is therefore particularly important that women and dual-career partners are not relegated to second-class positions.

Past discrimination makes it impossible to sort out how much of women's low science participation is

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due to the other factors described above. The scientific community should do whatever it can to speed up the removal of unnecessary impediments which have traditionally made it difficult for women to balance career and family.

We are encouraged by the many recent efforts to both recruit and retain female scientists, such as NSF's Research Opportunities for Women and Visiting Professorships for Women programs. These will be particularly helpful within the oceanographic community due to its traditional dependence on federal support. One important aspect of these programs in the context of dual-career couples is their objective to provide role models and help women scientists get reestablished after taking some time off, usually to have a family. As women gain equal access, these programs should be extended to male partners in dual-career marriages, in order to increase the visibility and acceptance of dual-career role models, and avoid the institutionalization of "mommy tracks."

Future Prospects

It is hoped that in the future men and women will not be forced to depend on positions and institutions chosen for compatibility with marriage rather than professional goals, or be forced to choose between marriage and career. As Rossi (1965) so eloquently stated, "Marriage, parenthood and meaningful work are major experiences in the adventure of life. No society can consider that the disadvantages of women have been overcome so long as the pursuit of a career exacts a personal deprivation of marriage and parenthood, or the pursuit of happiness in marriage and family life robs a woman of fulfillment in meaningful work." The same applies today to both dual-career partners.

While the plight of dual-career couples in the sciences is presently discouraging, we believe that women and men should be encouraged to pursue science careers. Women are underrepresented, underemployed and underpaid in most fields, and dual-career couples also have a difficult time in most fields. The gradual acceptance of the working wife, the tendency for husbands to share household responsibilities, and the projected shortage of male scientists all suggest that the decades ahead will provide a "window of opportunity" in which women and dual-career couples will find it easier to balance family and career in the sciences than in many other fields. It is difficult to predict future employment trends (Finkbeiner, 1987), particularly for oceanographers (Nowell and Hollister, 1988). Nevertheless, projections suggest that shortages will be severe; indeed, that is why so many programs are presently being developed to recruit and retain female, minority and disabled scientists.

The two common traits required for the development and implementation of virtually all successful programs appear to be the exertion of strong leadership at the highest levels, and an accepting, supportive attitude among colleagues. Institutions which

respond to the challenges posed by dual-career couples are serving their own best interest as well as society's. Those fields and institutions which can best recruit and retain dual-career couples will have a larger applicant pool and a more productive and stable workforce. The sooner science professionals and institutions view women, minorities and dual-career couples as an opportunity rather than a problem, the greater will be the chance that individuals will choose science over other fields. To avoid further shortages of scientists, personal hardships, and recruitment and retention difficulties, it is imperative that the transformation start now, and that it be continued on the basis of equity as well as necessity.

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COMMENTS ON OCEANOGRAPHIC INSTRUMENT DEVELOPMENT

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The major oceanographic institutions also need to find ways to support innovative instrument development engineers, in close collaboration with scientists, but with their own reward system and encouragement to innovate on their own. There are a number of clever engineers to be found in the oceanographic community, but they are not very conspicuous; they are often confused with "applied oceanographers," and they are rarely recognized even by their own institutions (at least one of our large oceanographic institutions insists that all its staff must be labelled "scientists" even if they are really engineers—a rather brutal statement of values). Engineering culture is not oriented toward publication the way the science culture is; measures of achievement appropriate for a physical oceanographer—meant to be doing and publishing

science—are often inappropriate for an engineer, whose product is a new instrument that someone else will use to do science. Indeed, one good measure of a successful engineer is the number of people, outside the original group, who have successfully used one of his new instruments. Some modified reward structure, established to sustain innovative oceanographic instrument development, would surely go a long way toward ameliorating this situation. It is true that oceanographic-instrument engineering, if done independently of working scientists, can go off into sterile directions (the same is true of theory done in isolation from observations). But there are good, creative instrument engineers with the common sense to stay in close touch with the scientists who would need to work with the data. At the present time, the insti-

tutional/funding system almost demands that such people can at best be junior partners of the scientists.

To encourage true engineering innovation, the system has to be willing to invest in a few talented individuals and bet on their ideas for about a decade at a time. It would be expensive—but all field oceanography is expensive—and probably cheaper in the long run than the present piecemeal, short-term system.

There are probably other, better remedies than these. Perhaps The Oceanography Society could take a lead in trying to define ways to sustain the technical developments which seem so central to the health of our science.

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