

## Child Care Dilemma

Carl Djerassi's solution (Letters, 1 Jan., p. 10) to the very real problem of adequate child care for children of faculty persons engaged in demanding research efforts is provision of funds, provided by the government, to subsidize live-in or super-full-time domestic care. While well intentioned, this suggestion trivializes the overwhelming domestic crisis facing the United States at this time. With a significant proportion of the female population of this country in the work force, the majority of families are in constant search for adequate child care. To segregate out children of faculty members of universities is both elitist and does not address the underlying problem. What is required is small, comfortable, developmentally beneficial child care in the workplace, both in universities and in businesses throughout communities. It seems obvious that the universities, as educational institutions, should be in the forefront of efforts to establish such centers within each unit of the university, perhaps one in each building comprising a university campus for children of faculty and staff. This approach requires a commitment of space and resources as well as staff on the part of the employer which seems large but pales in comparison with individual subsidies to women (and men) with small children. In fact, in the 1940s, when it was perceived that women were needed in factories as part of the war effort, exactly these sorts of day-care facilities were provided by factories.

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My colleagues and I were pleased to see a letter concerned with the plight of women scientists. However, the author appears to fall into the same trap that most of our society is fooled by. Raising and caring for children, except for a short period following birth, is as much the father's responsibility as the mother's. Therefore, attributing a problem to mothers—rather than to parents—only serves to perpetuate a crippling stereotype. Also, I think a focus on the financial aspect of raising children is inappropriate for a two-income family. Even if both parents are in relatively low-paid academic positions, the crucial constraint is time, rather than money. Money is more of a problem for single parents and students. Competent

child care is certainly necessary, and some progressive institutions and companies provide it on-site. (Thank you, Leon Lederman for the Children's Center at Fermilab.) But competent child care is by no means sufficient. The real need is for more flexibility in both schedules and attitudes to allow parents to spend time with their children and also to tend to the myriad of managerial details that result from contracting out the household duties it would take even more time to perform. Such flexibility would allow scientists to lead normal lives and be useful citizens outside of their laboratories. This would entail reexamination of "the 60- to 80-hour macho work weeks" as a requirement for being accepted into the scientific community, for both males and females. Neither parent can serve as much of a role model if the children never see them.

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We commend Djerassi for calling attention to the difficulty of raising a family while passing through the academic science hurdles. However, the solution he proposes would continue the same mentality that has produced the "macho work week" required to achieve tenure. While the impact of ten women scientists having their children early might draw attention to the problem, it is certainly not a solution.

Second, the proposal ignores the emotional demands of motherhood (and fatherhood). One does not simply have a baby, turn it over to a full-time nanny, and disappear into the laboratory. What sort of role model would these grant recipients provide? Certainly not one that most mothers would relate to.

A humane rather than a macho solution is needed. What ends are served by the 60- to 80-hour work weeks we put new scientists through? If a career in academic science requires a full-time support person at home and therefore is limited to the wealthy, then our technological society is certainly doomed. What is needed is a level of societal support for child-raising similar to that provided in virtually all other advanced societies. The career hurdles must also be reduced to a level consistent with maintenance of both a professional and a personal life. The long-term cost of *not* taking these actions is too great to be rationally considered.

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Reading Djerassi's letter "My mom, the professor," I was reminded of a biographical note by Kathleen Lonsdale (1) which shows that W. H. Bragg had the same idea almost 60 years ago.

Lonsdale writes: "In 1929 my first baby came and I found it rather difficult to do everything at home and also find time for 'Arbeit'; so I wrote to W. H. Bragg and he persuaded the Management of the Royal Institution to give me a grant of £50.- for one year with which to hire a daily domestic helper. . . . I managed to continue the structure analysis of  $C_6Cl_6$ . . . . In November 1931 Sir William wrote to me again: 'A piece of good news: Sir Robert Mond is giving us £200.- with which you are to get assistance at home to enable you to come and work here. Can you come . . . ?'"

Lonsdale replied that her expenses could be estimated as £277 and Sir William eventually came through with £300. Lonsdale's distinguished career is certainly a strong argument for the value of Djerassi's suggestion.

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## REFERENCES

1. K. Lonsdale, in *Fifty Years of X-ray Diffraction*, P. P. Ewald, Ed. (Oosthoek, Utrecht, 1962), p. 595.

## Radar Systems

As reported by Stephen Budiansky (News & Comment, 27 Nov., p. 1219), the Royal Air Force (RAF) suffered the loss of five or possibly six aircraft due to Argentine anti-aircraft missile defenses during the Falkland War. If true, this would mean that approximately 25% of the mission-related aircraft losses (fixed-wing and helicopter) suffered by the RAF were due to missiles. Budiansky's statement is not supported by the available facts. Ethell and Price (1) detail the aircraft losses for both sides and attribute only two RAF aircraft losses to missiles, one a Roland and the other a "missile, type not certain." One of the lessons learned from the Falkland War was that the anti-aircraft missile systems designed for the terrain of Europe did not work well in the hilly countryside of the East Falklands (1).

As for the Exocet versus HMS *Sheffield* incident, the Exocet is an active-radar-guided antiship missile, using its own radar to locate the target, not a passive system, as implied by Budiansky. The extensive decoy procedures that were used by the Royal Navy would have been pointless against a

passive radar homing guidance system. The Atlantic Conveyor, the second victim of the Exocet, had relatively primitive radar compared with that of the HMS *Sheffield*, yet the Exocet locked in on her because of her size (radar signature). The typical attack profile for the Exocet, as used by the Argentine Air Force, involved "popping up" from the deck approximately 20 miles away from the target, acquiring a strong radar return, launching the missile, and turning away before visual identification occurred. The limited onboard radar of the Super Etenard aircraft was supplemented by an Argentine KC-130 refueling aircraft serving as the main radar search aircraft.

Budiansky raises interesting points concerning the rapidly advancing changes in sensor technology on the battlefield, but radar is still quite a long way from becoming the obsolete and dangerous system he describes. I would be willing to wager that the forces with the best radar systems and ability to use them will be the victors in conflicts for the foreseeable future.

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#### REFERENCES

1. J. Ethell and A. Price, *Air War South Atlantic* (Sidwick and Jackson, London, 1983).

*Response:* I did not intend to imply that the Exocet is a passive-radar homing missile. My point was rather that radar emissions coming from the British ships gave away their location to the Argentine fighter in the first place. According to Jeff Ethell, coauthor of the reference cited by Stumpf, it was a passive-radar receiver on the fighter, not an active radar on Argentine aircraft, that located the target. The figures I cited for Argentine kills with the Roland were from information supplied by the missile's manufacturer, and were apparently based on Argentine claims. Ethell, who conducted extensive interviews with both British and Argentine fighter pilots, was able to confirm only a single Roland kill, as Stumpf correctly points out.—STEPHEN BUDIANSKY

#### Rinderpest Campaign in Africa

John Walsh (News & Comment, 11 Sept., p. 289) recently reported on our campaign against rinderpest, the severe disease of cattle that still occurs in some parts of Africa. In the report of the First Technical Committee Meeting of the Pan-African Rinderpest Campaign (PARC), which was held

in Nairobi in July 1987, the following facts could be noted.

Following directives from the heads of state and government of the Organisation of African Unity (OAU), the planning and coordination of PARC was entrusted to the Interafrican Bureau for Animal Resources (IBAR), of which I am the director. This bureau is a technical arm of the OAU. The ministers responsible for livestock affairs of the OAU member states resolved, at a meeting in Addis Ababa in 1986, that PARC should go forward with their support. The campaign in each country will be implemented by the national livestock services, but will be coordinated by this office. More than 30 countries are involved, stretching from Egypt to Zimbabwe and from Mauritania to Tanzania.

Only five countries in Africa have endemic rinderpest; in these, we are mounting vaccination campaigns. Emergency provisions are available for countries that are at risk because of the danger of spread of the infection from their neighbors. Vaccine quality control is being provided, and banks of rinderpest vaccine have been established in strategic laboratories. Sero-surveillance is being undertaken and will continue throughout the campaign, and after, in the affected countries.

A complementary action of PARC is the revitalization of livestock services, which have for a variety of reasons, chiefly financial, been unable to perform to their full potential. Dialogues are taking place and projects mounted that will result in the liberalization of the services and their financial independence in the future.

In addition, we have entered into contracts for the investigation of three fields of research: the immunosuppressive action of the rinderpest virus (either field or vaccine), the role of wildlife and small ruminants in the transmission of the disease, and the elaboration of a thermostable vaccine that will eliminate the need for a "cold chain."

Financial support for PARC comes from many sources, the largest donor being the European Development Fund, which has signed a financing agreement with the OAU. France, the Federal Republic of Germany, Italy, Nigeria, Japan, and Britain are also assisting, and the campaign is being dovetailed with the activities of the World Bank in some countries.

The Food and Agriculture Organization is helping greatly by establishing and running the vaccine quality control laboratories and by providing equipment and training for vaccine-producing laboratories. They are not, however, involved in the general financing of PARC, as suggested in Walsh's article.

A coordination unit for the campaign has been established in Nairobi, staffed with acknowledged experts in the relevant disciplines. In addition, a unit in Bamako, Mali, is providing regional coordination of the campaign in West and Central Africa.

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#### ABM Treaty

I am mystified by S. Fred Singer's letter (27 Nov., p. 1215) saying that Article II(2) of the Anti-Ballistic Missile (ABM) Treaty explicitly contradicts the strict interpretation of the ABM Treaty. Even under his reading this article states that the ABM Treaty applies to ABM components that are "undergoing testing." This is precisely what is at issue in the ABM Treaty interpretation debate—whether the testing of futuristic ABM systems is restricted under Article V(1): "Each Party undertakes not to develop, test, or deploy ABM systems or components which are sea-based, air-based, space-based or mobile land-based."

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*Erratum:* In the Research Article "Meiotic recombination in yeast: Alteration by multiple heterozygosities" by Rhona H. Borts and James E. Haber (18 Sept., p. 1459), reference 1 should have included the following articles: D. Hurst, S. Fogel, R. K. Mortimer, *Proc. Natl. Acad. Sci. U.S.A.* 69, 101 (1972); R. K. Mortimer and S. Fogel, in *Mechanisms of Recombination*, R. F. Grell, Ed. (Plenum, New York, 1974), pp. 263–275; S. Fogel, R. K. Mortimer, K. Lusnak, F. Tavares, *Cold Spring Harbor Symp. Quant. Biol.* 43, 1325 (1978).

*Erratum:* In the last paragraph of Constance Holden's article "Apples, frogs, and animal rights" (News & Comment, 4 Dec., p. 1345), the description of a bill being considered by the California state legislature was incorrect. An amended version of the bill is now being considered that would give all students in grades kindergarten through 12 in public schools the right to refuse to dissect or harm an animal as part of a course of instruction. Colleges and universities would not be affected.

*Erratum:* Mark Crawford's article "Growth in R&D spending slows" (News & Comment, 1 Jan., p. 12) incorrectly stated that Congress has provided \$10 million for construction-related activities on the proposed Superconducting Super Collider in fiscal year 1988. Congress appropriated \$25 million for research and SSC site selection activities, but rejected the request for construction funds.

*Erratum:* In the Research Article "Genetic reconstitution of functional acetylcholine receptor channels in mouse fibroblasts" by Toni Claudio *et al.* (18 Dec., p. 1688), figures 1 and 2 on pages 1689 and 1690 were reversed. The figure captions were correct.