Letters

Is Sterilization the Answer?

The lamentable lack of knowledge about the consequence of sterilization perhaps accounts for the strong opposition to it by the Cornell students and faculty when they were polled recently on various methods of birth control ("Population control, sterilization, and ignorance," 23 Jan., p. 337). Fifty-two percent of males and sixty-one percent of females said they would *never* undergo sterilization, even after having had the desired number of children. About one-half favored the oral contraceptives over all other available means. Even a large proportion of biology students confessed ignorance or doubt about the well-established fact that vasectomy does not abolish the ability to ejaculate. In India about 5 million vasectomy operations have been performed since 1956 and complaints about any adverse effect of the operation on the sexual function of the sterilized men have been almost absent.

The results obtained at Cornell certainly emphasize the need for very comprehensive sex education including physiology of reproduction and methods of birth control. The valiant efforts of SIECUS (Sex Information and Educational Council of the U.S.) to introduce sex education in the schools have recently been opposed by a few conservative groups such as the John Birch Society. It needs the active support of scientists and other open-minded persons so that everybody can acquire adequate knowledge of sex and its related aspects in life. Only then can we expect adults to make a more intelligent choice of the method of family planning or limitation. If this is true for a highly literate society as in the United States, it is much more true for other societies with lower literacy levels.

MONI NAG
Department of Anthropology, Columbia University, New York 10027

. . . With regard to bilateral vasectomy, the disturbing dearth of knowledge and lack of acceptance is particularly unfortunate. This simple procedure is safe, reliable, and is hardly inconvenient. Furthermore, no outward sexual effect results from it including the retention of the ability for adequate ejaculation. Although it has been traditional to warn individuals before embarking on this procedure that their decision should be considered irrevocable and the success of an operation to reverse the effect of vasectomy is only marginal, this posture is no longer tenable.

With the improved methods of storage of human semen (freezing and freeze-drying) (*1*), subsequent insemination following vasectomy, should the need arise, is a feasible and practical prospect. Undoubtedly our experience with artificial insemination in animal husbandry has been most reliable. This alternative, however, is not possible in case of female sterilization (bilateral tubal ligation). At least, so far, we have not been successful in obtaining and preserving human ova in a satisfactory functional condition. Nevertheless, recourse to reparative surgery may provide a partial answer for the time being.

M. H. K. SHOKEIR
Department of Paediatrics, University of Saskatchewan, Saskatoon, Canada

Reference

1. J. K. Sherman, *Fert. Steril.* **14**, 49 (1963).

. . . If one can judge emotional health from scores on attitudes toward having children and respect for a person's sexual apparatus, Cornell ranks A+. To quote the authors: "Only 6 percent opted in favor of vasectomy as the preferred form of contraception once the full family size had been achieved; the corresponding number favoring ligation of the oviducts was 2 percent. A majority said they would *never* undergo sterilization . . . the operation was judged to be as undesirable as abortion and abstinence. . . ."

Before the authors conclude that it is the sudents' and faculty's ignorance of the outcome of vasectomy and tubal ligation which produced their abhorrence of altering the sexual apparatus, perhaps they should investigate the psychological outcome of tubal ligation, vasectomy, abortion, and abstinence.

I disagree that these results mean the students and faculty are "unable or unwilling to apply to itself the simple arithmetic . . ." (of population control). I conclude the students' and faculty's insight about population and the control of population is much greater than the investigators'.

FRANCIS A. BOARD
916 19th Street, NW, Washington, D.C. 20006

. . . While it is true that people should be educated in the biological sciences, biologists or sociologists should not take the attitude of dictators who received their well-deserved punishment during and after the Second World War. Having grown up in that era, I look upon Eisner's editorial the same way I used to regard the enunciations of Rosenberg and his pseudoscientific supporters.

Do we hate our own species so much that it is regarded as a crime if people want to have at least three children? Animal husbandry is only possible because we (man) are superior to the animals. But, for heaven's sake, nobody should do husbandry with us. . . .

GEORGE SZABO
Harvard School of Dental Medicine, 188 Longwood Avenue, Boston, Massachusetts 02115

Sublimnos: "Volkswagen" of Underwater Habitats

Sublimnos, Canada's first underwater habitat, is now available at no cost to scientists who wish to conduct investigations. It is located in the cool and oligotrophic water of Georgian Bay (10 meters in depth) on Lake Huron where the ecosystem is very simple. The bottom is sand and clay in a protected bay with a shoreline of boulders. Water visibility varies between 2 and 15 meters (average 6 meters). Summer temperatures vary between 22°C and 4°C.

Unlike *Sealab, Conshelf,* and *Tektite, Sublimnos* is a low budget operation which has cost approximately 1 percent of the estimated cost of *Tektite I.* It is within the purchasing power of small universities. At this low level of investment, it has operated for 6 months and will continue (including periods of ice

cover) for at least 2 to 5 years. Support equipment is based on shore, eliminating the need for a surface vessel. Spartan facilities include a shore shack, electricity, hot water heating for divers and habitat, and low and high pressure compressors on the site. An umbilicus leads underwater to *Sublimnos* to supply air, communications, and heat for support of four men in the habitat. A portable substation is placed near the experiments for diver-to-diver communications.

Scientists are invited to submit to me outlines of projects (including a summary of methods, equipment, personnel, and proposed timing).

ALAN R. EMERY
Ontario Department of Lands and Forests, Maple, Ontario, Canada

Serratia marcescens: A Pathogen

Laboratory manuals are still being published with directions for rubbing suspensions of *Serratia marcescens* directly on the hands of students in experiments which demonstrate, with handshaking, the dispersal of a microorganism. *Serratia marcescens* has been indicted as the infectious agent in urinary tract infections, pneumonia, empyema, lung abscess, meningitis, wound infection, sinusitis, endocarditis, and a frightening variety of other diseases.

Any instructor who plans to use this organism in his laboratory should read the papers by Gaughran (*1*) and Dodson (*2*).

THOMAS A. WHALEN
Division of Science, Siena College, Loudonville, New York 12211

References

1. E. R. L. Gaughran, *Trans. N.Y. Acad. Sci.* **31**, 3 (1969).
2. W. H. Dodson, *Arch. Intern. Med.* **121**, 145, (1968).

Alaska: Ground-Level View

The purpose of my letter is not to contest the privilege of a marine geolologist to express his opinions on the recovery of terrestrial ecosystems ("Rape of Alaska can be rational," Wright, Letters, 5 Dec.). However, such opinions must be based upon a more ground-level view of the ecosystem rather than a view from a slow flying airplane.

A more thorough examination must be made of Wright's examples of how the land has been "raped in a rational manner." He maintains that areas dredged 50 years ago are now completely recovered, but it was not until 1928 that gold dredging commenced in the Fairbanks area (*1*). Even if the "raped" areas are 41 years old, it is hard to imagine that a spruce forest that takes 100 to 150 years to mature after a burn (*2*) could possibly achieve a stage of "complete recovery" or successful healing in that period of time. I have personally walked over the barren expanses of coarse gravel of many of the dredged areas of the interior. With the exception of a few willows and an occasional spruce, I would describe the tailings as barren piles of rock. It is not true that these rocks have even begun to recapture the completeness of the food web that was once represented before the dredging. Wright's statement that gold mining is an example of "how an area can be exploited without permanent damage" is unfactual and at least 100 years premature. In short, gold dredging is one of the most blatant examples of irresponsible exploitation in Alaska.

Wright's description of the widespread burning of interior Alaskan forests by the early miners and the assumed beneficial effects for moose overlooks the fact that fire has been a dominant ecological factor long before man's influence (*3*). Even today lightning fires account for the greatest proportion of