

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.