vivisection detailed my firsthand experiences as a disability and animal rights advocate. Far from defending disease, my presentation examined how scare tactics that play on people's fears about illness are often used to promote further experimentation on nonhuman animals.

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German Society and German Science

In his editorial of 10 May (p. 791), Hubert Markl criticizes "a vocal part of German society" that has been hostile to nuclear technology and biotechnology, "driving billions of marks worth of high-tech investment abroad." I think these people legitimately struggle to direct scientific and technological enterprises for the benefit of mankind.

At present, science is not being recognized as a benefit. Chernobyl is an ongoing nightmare. The predicted economic benefit of nuclear energy—to make the Sahara green and to change the North Pole into the Riviera—has all but vanished. This was made plain in the early 1990s, when the then British Prime Minister Margaret Thatcher removed nuclear power from the electricity-privatization package in order to make privatization viable.

And what about biotechnology? A prominent achievement of genetic engineering is associated with the junkie aesthetics of injecting cows with growth hormones for increased efficiency in milk production. A major goal is associated with the equally drug-fiendish mentality of making crops resistant to industrial pesticides. Voices like that of Germany's former Liberal Democratic Secretary of State Hans-Dietrich Genscher have endorsed the conciliatory side of biotechnology: that it allows manufacturing of better products by ecologically benign processes. Is this direction of biotechnology politically inopportune? If the controversy in Germany about genetic engineering seems bizarre, that's because it is. Scientists should stay out of it.

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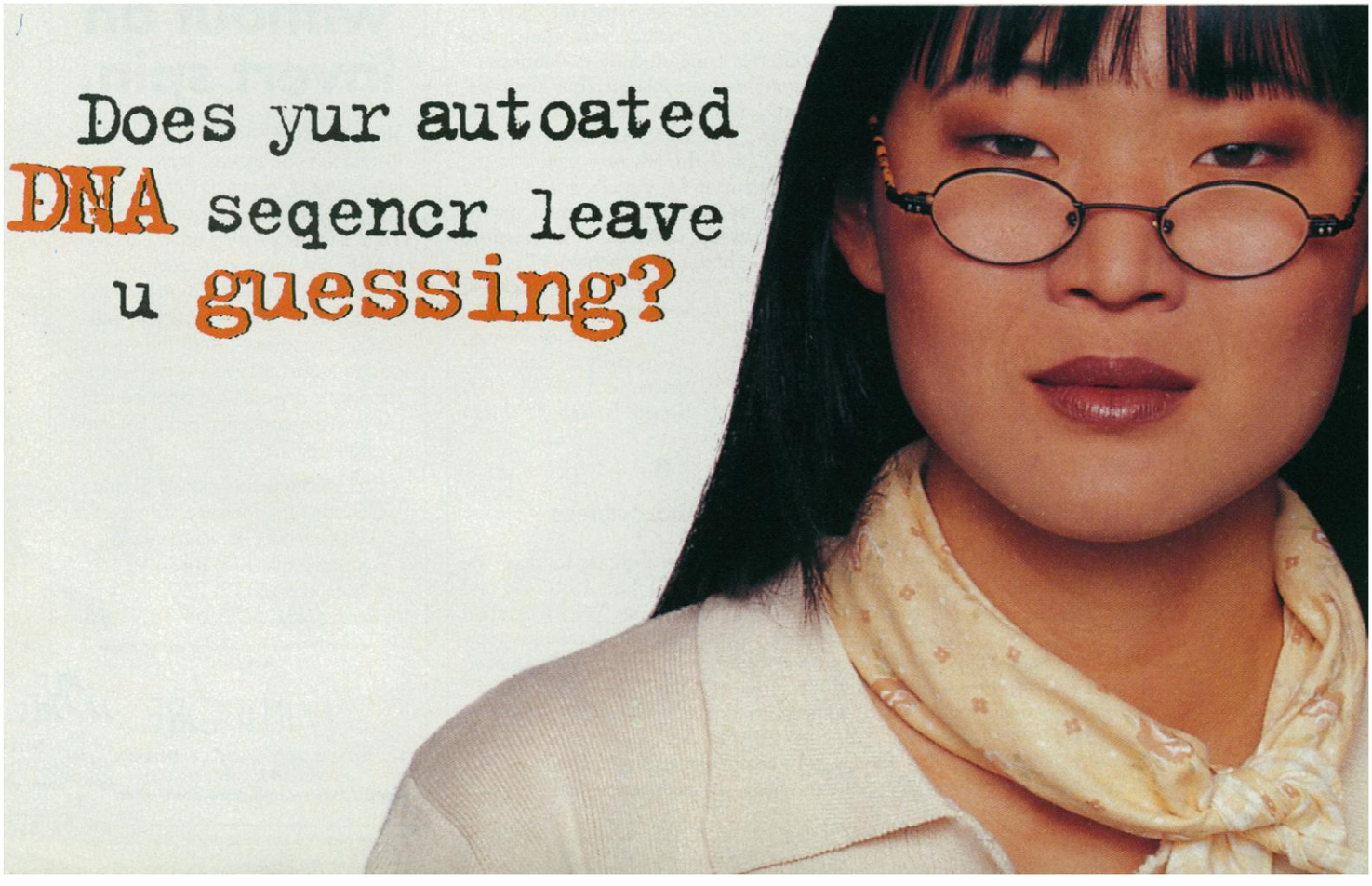
Fetal Immune Response

The recent demonstration—by three different groups using distinct experimental approaches—that immunization during the neonatal period leads to vigorous and protective immune response rather than to tolerance is of major significance for immunologists, but most important, it opens for clinicians new horizons regarding vaccination (Reports, 22 Mar., pp. 1723, 1726, and 1728). These studies, performed with neonatal mice, are in keeping with earlier observations in human studies that maternal vaccination with tetanus toxoid (TT) during the last trimester of gestation induced active in utero immunization of the offspring. The umbilical cord blood of such newborns contained immunoglobulin M (IgM) antibodies against TT (IgM does not cross human placenta), and children born to mothers vaccinated during pregnancy displayed an enhanced anti-TT response to the classical DPT vaccination program (*1*). Given that maternal immunoglobulin G (IgG) crosses the placenta, it was not possible to determine whether in utero immunization led to the production of IgG antibodies. However, immunoglobulin E (IgE) anti-TT antibodies were detected in a significant proportion



of samples of cord blood serum containing IgM anti-TT antibodies (*2*). The observations that samples of the corresponding maternal serum did not contain IgE anti-TT antibodies further suggested that a T_H2-like response had been induced in the fetus. This result may be explained by (i) the type of adjuvant present in the preparation of TT vaccine (that is, aluminum salts), which is commonly used to induce T_H2 response in experimental animals, and (ii) the T_H2 deviation of the immune response during pregnancy (*3*). The concentrations of cord blood IgE antibodies were very low and not clinically relevant. These observations thus extend to the human system the concept that neonatal and even fetal T cells are fully immunocompetent. The findings that immunization during the last trimester of pregnancy induces active protective immunity in both the mother and the fetus should be considered in vaccination programs, particularly in areas of the world where infectious diseases are a leading cause of perinatal mortality.

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References

1. Y. Vanderbeeken, M. Sarfati, R. Bose, G. Delespesse, *Am. J. Reprod. Immunol. Microbiol.* **8**, 39 (1985); T. J. Gill *et al.*, *J. Clin. Invest.* **72**, 987 (1983).
2. M. Sarfati and G. Delepesse, unpublished observations.
3. T. G. Wegmann *et al.*, *Immunol. Today* **14**, 353 (1993); L. Krishnan *et al.*, *J. Immunol.* **156**, 644 (1996).

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Peopling the Americas

We appreciate that Peter Parham and Tomoko Ohta have taken our map to outline their superb findings in their report "Population biology of antigen presentation by MHC class I molecules" (5 Apr., p. 67). Our contribution, however, would seem to go further than that because we have pointed out that transpacific routes from Asia, and more specifically from Japonesia, toward South America could be important in understanding the differences between North American and South American Natives (SAN) (*1*).

People with the so-called "new" (according to Parham and Ohta) allele, such as the Cayapa or Chachi from Ecuador, also display an aldehyde dehydrogenase deficiency that is molecularly similar to that found in Southeast Asian and Japanese people, but absent in Northeast Asians (*2*). In Japan, Ryukyu and Ainu populations, considered the original Japanese, included a higher percentage of slow acetylators than the "modern" Japanese (*2*) and also showed the highest prevalence of human T lymphotropic virus type I (HTLV-I) infection (*2*, *3*). Curiously, HTLV-I strains from Japan are related in their molecular structure to those found in South America (for example, Chile, Colombia, and Brazil), and HTLV-II present in SAN and in some Japanese groups is also absent in the far eastern part of Siberia (*3*).

On the other hand, the α-globin gene haplotype distributed in SAN—similar to that observed in Southeast Asian and Pacific Island populations—does not have α-globin gene deletions, and this suggests that malaria was not present in the ancient SAN (*4*). Further similarities in major histocompatibility complex type I (MHC-I), as well as type II, haplotypes and in mitochondrial DNA are observed in Japanese, Pacific (for example, Polynesians), and SAN (for example, Mapuches) populations, but are absent in the far eastern part of Siberia (*5*). These similarities add strength to the proposal that ancient voyagers could follow the Pacific sea currents that join Japan to South America, as well as other routes (*1*).