

the matter, authorities have done nothing concrete so far". He adds: "Observers from abroad sometimes fail to realize that these environmental problems, which are serious and widespread, compete with a multitude of other health and environmental problems that have to take priority in a country with very limited resources."

Another environmental problem on Bangladesh's to-do list is arsenic contamination of ground water used for drinking, which a recent article in the *Bulletin* (Vol. 78, No. 9, 1093-1104) called "the largest mass poisoning of a population in history". ■

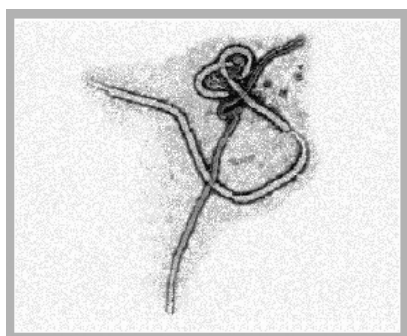
John Maurice, *Bulletin*

Experimental vaccine protects monkeys against Ebola virus

Scientists have created a two-part vaccine that has protected monkeys from the deadly Ebola virus, they reported in the 30 November 2000 issue of *Nature*.

One part of the vaccine consists of DNA, "naked DNA", coding for several Ebola virus proteins from the three strains of the virus — *Zaire*, *Sudan*, and *Ivory Coast* — known to cause disease in humans. This part is given in three monthly injections to "prime" the immune system of the vaccine recipient. The second part consists of an adenovirus, divested of its disease-causing potential, that carries a *Zaire* Ebola gene — one of the same genes contained in the prime part of the vaccine — into the cells of the vaccinated host. This second part of the vaccine, given 12 weeks after the initial priming series of injections, is designed to boost the immune response.

In the study, which was conducted by a group headed by Gary J. Nabel, director of the Vaccine Research Center at the National Institutes of Health (NIH) in Bethesda, Maryland, the "prime-boost" DNA vaccine protected all four vaccinated monkeys against lethal doses of the *Zaire* strain of Ebola virus. The monkeys were without symptoms or detectable virus 6 months after infection. The researchers



plan to test the vaccine against the other two strains.

This is believed to be the first report of successful immunization of primates against Ebola. In earlier experiments performed at the University of Michigan and also by the NIH group, a similar DNA vaccine protected mice and guinea pigs.

"There is still some way to go before a human vaccine is available, but this is a step in the right direction," noted Dennis Burton and Paul Parren, of the California-based Scripps Research Institute in La Jolla, California, in a commentary in the same issue of *Nature*.

Dr Nabel told reporters that the prime-boost vaccination approach is "a highly effective way to boost immunity to otherwise deadly viruses". It is being tested in an experimental AIDS vaccine and could, he believes, be applied to infections such as malaria or tuberculosis. ■

Scott Gottlieb, *New York*

Treaty bans pollutants but allows DDT for malaria

After two-and-a-half years of discussions, in December negotiators for 122 governments meeting in Johannesburg, South Africa, finally agreed on the text of a legally binding convention that will ban or restrict the production and use of a dozen so-called persistent organic pollutants known to be damaging to human health and the environment. The week-long meeting was sponsored by the United Nations Environment Programme, with technical input from WHO.

The convention, when it is signed in May at a high-level ceremony in Stockholm, will allow DDT, one of the "dirty dozen" as these highly toxic chemicals have been dubbed, to continue to be used for control of malaria until suitable alternatives are found. The other 11 pollutants are polychlorinated biphenyls, dioxins, furans, aldrin, dieldrin, endrin, chlordane, hexachlorobenzene, mirex, toxaphene and heptachlor. Most of these pollutants are known to be damaging to health to various degrees and in various ways — promoting cancer, damaging the central and peripheral nervous systems, causing reproductive disorders, disrupting the immune system and interfering with normal infant and child development.

"The special status accorded to DDT is excellent news for the Roll Back Malaria partnership and for WHO," John-Paul Clark, the partnership's policy adviser and chair of WHO's working group on DDT, commented to the *Bulletin*. The Roll Back Malaria

partnership, involving several international organizations and humanitarian agencies, was set up two years ago to halve the world's malaria burden over the next decade.

Indoor spraying of DDT was the cornerstone of WHO's partially successful malaria eradication programme in the 1940s to 1970s. Since the 1970s, most countries have outlawed DDT for agricultural use. In 1997, the World Health Assembly, responding to growing public concerns over the possible ecological and health effects of DDT, called on WHO Member States to reduce their reliance on insecticides for control of vector-borne diseases, like malaria. Several countries have begun phasing out DDT use and only two, China and India, still produce it. Today, as one of the least expensive yet effective means of combating the mosquito vector of malaria, it is still the insecticide of choice for malaria programmes in about two dozen countries, all among the world's poorest.

The new convention must be ratified by at least 50 countries. It stipulates that every three years countries using DDT must inform the treaty secretariat and WHO about how much they use and specify the extent to which such use is essential for their efforts to combat malaria. The convention also calls on all treaty signatories to provide support for research on alternative insecticides or other antimalarial tools and strategies and to provide technical and financial assistance to countries trying to wean their malaria programmes off DDT.

"By allowing the use of DDT specifically for the control of malaria vectors and at the same time promoting the development and use of alternative antimalaria strategies that don't require insecticides, the convention achieves a win-win situation both for the environment and for public health," said Dr Clark.

Already, through a regional initiative orchestrated by the Pan American Health Organization, eight Central American countries — Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Panama — have raised US\$ 750 000 towards reducing their dependence on DDT. Similar projects are due to start in Africa and Asia. ■

John Maurice, *Bulletin*

Mental illness and smoking show strong links

Mentally ill Americans are nearly twice as likely to smoke as those without mental illness, according to a study reported in late November in the *Journal of the American*

Medical Association (JAMA). The study, conducted by a research group led by Karen Lasser of the Cambridge Hospital and Harvard Medical School, Cambridge, Massachusetts, suggests that people with mental illness account for nearly one half of the United States tobacco market.

The study used population-based data from a national survey mandated by US Congress to determine the prevalence of psychiatric disorders. The researchers questioned a sample of 4411 non-institutionalized people, who had participated in the survey, regarding their use of tobacco and also submitted them to a standard psychiatric diagnostic interview to determine prevalence of mental illnesses, as defined by international diagnostic criteria.

Of those who had ever had mental illness in their lifetimes 34.8% were current smokers, vs 22.5% of those who had never been mentally ill, and 55.3% had smoked at some time in their lives, vs 39.1% of people without mental illness, the study found. Extrapolating their results to the US population, the researchers estimated that persons with a recent diagnosable mental disorder consumed nearly half the cigarettes smoked in the United States.

In discussing their results, the Harvard researchers point out that tobacco manufacturers clearly target their market strategies to psychologically vulnerable persons, according to internal tobacco industry documents. Market researchers at the RJ Reynolds Company, for example, speak of smokers who smoke for "mood enhancement" and "anxiety relief".

A study published by another US research group in an earlier November issue of *JAMA*, found a significantly higher proportion of anxiety disorders among adolescents who were heavy smokers — at least 20 cigarettes a day — than among adolescents who smoked less or did not smoke at all. Among the nearly 700 youths followed up for the prospective study, those who smoked heavily had a nearly sixfold risk of generalized anxiety disorder, sevenfold risk of agoraphobia and sixteenfold risk of panic disorder. Heavy smoking in adolescence was associated with an almost elevenfold risk of anxiety disorders in early

adulthood. The study was conducted by Jeffrey Johnson and his colleagues at Columbia University and the New York State Psychiatric Institute, the Mount Sinai Medical Center in New York, and the National Institute of Mental Health in Bethesda, Maryland. ■

Fred Charatan, *Boynton Beach, Florida, USA*

In Brief

A tomato a day keeps death away (for some people)

Children eating tomatoes had a significantly lower mortality rate than children who did not, in a prospective study of nearly 29 000 Sudanese children under 5 years of age. The Harvard School of Public Health team conducting the study visited the homes of the children on 4 occasions at 6-monthly intervals. Children reported by their mothers on 3 of these occasions to have eaten tomatoes had an 83% reduction in mortality compared with children not reported to have eaten tomatoes. Tomatoes also showed a dose-related reduction in diarrhoea-related deaths. Adjusting for confounding factors, including vitamin A intake, only slightly weakened the link with tomato consumption. "What is important," said Dr Fawzi, who headed the study team, "is not so much the magnitude of the mortality reduction — the 38–91% confidence interval was quite large — but that a dietary approach, in this case tomato consumption, can have an extremely important impact on mortality and morbidity in children". He believes the effect of the tomatoes could be due, among other things, to their high content in immunostimulatory antioxidants. The study was published in the October 2000 issue of the *Journal of Nutrition*. ■

A fly that vaccinates the host it feeds on

A US research team headed by David Sacks of the National Institute of Allergy and Infectious Diseases in Bethesda, Maryland, reported last November in *Science* what could become a revolutionary approach to

vaccination against vector-borne infections. They found that exposing mice to the bites of uninfected sandflies protected them against leishmaniasis, a disease that can be as disfiguring and disabling as leprosy, and that can only be transmitted to humans by sandflies. Something still unidentified in sandfly saliva seems to produce a delayed-type hypersensitivity response that prevents *Leishmania* parasites from causing disease, the researchers postulate. When that something is identified, it may, they believe, become the basis for a vaccine against leishmaniasis, and a similar approach might be used to vaccinate against other diseases carried by insect vectors, including malaria. ■

Laugh to your heart's content!

People who don't laugh a lot may be at greater risk of heart disease than those who do, according to a US study by cardiologists at the University of Maryland Medical Center in Baltimore, Maryland. The study, presented at the American Heart Association meeting in New Orleans last November, found that among an otherwise matched sample of 300 people responding to a questionnaire about their "laughing habits", the 150 participants with a history of heart disease were 40% less likely to laugh at a variety of situations described in the questionnaire than the 150 with no history of heart disease. Who gets the last laugh on the issue is anyone's guess. ■