

Both contraceptives have a physiological advantage over the pill. Because steroid dosage is sustained and even over a long period of time, these methods avoid the sudden peaking effects produced by the pill every time the pill is taken. For this reason, medical researchers are looking to such methods as potentially valuable for administration of other drugs, such as insulin or antibiotics.

When the two new contraceptives come on the market, Third World users will be assured of supplies at a low price, thanks to the iccr. The committee, set up to develop leads on new contraceptives — particularly those not of interest to industry — also protects the public sector market rights of these products. It does this by allowing commercial firms to make use of its research provided they will agree to sell the products at a fixed low cost to the public sector in developing countries. (The public sector is defined as government and family planning and similar agencies).

For example, one of the committee's developments was the Copper-T intrauterine device, which is now available in developing countries at a fraction of the cost it is sold for in the West. The saving to the Indian government was \$4 million over what it would have been if the government had bought the Copper-T through commercial outlets.

After identifying a potentially useful new contraceptive, the committee decides where research should be done on it, usually designating three centres in different countries. If all three produce similar results, the future for the device looks good — if not, more research must be done. □

*In December 1973, IDRC approved a 2-year grant of \$500 000 in support of the research activities of iccr. During 1974 and 1975, important advances were made in several areas of contraceptive technology, including the female implant, vaginal rings, sperm suppression in the male, and intrauterine devices (the Copper-T is, in fact, the first contraceptive to be developed and marketed for the public sector by a nonprofit organization). Early in 1976, a second grant was approved, allocating \$3 000 000 over 3 years to further pursue the most promising research leads. A major research and development program was mounted to determine the safety, effectiveness, and feasibility of a vaccine employing human chorionic gonadotrophin (hCG) in the prevention of pregnancy.*

## Science demystified

David Suzuki

Today, the most powerful force shaping the lives and destinies of all people on this planet is science, applied through medicine and technology. The explosion of information, accumulated by a scientific community that is now larger than the total of all other scientists who have ever lived, is feeding ideas and techniques to the military and industry at ever accelerating rates. It is sad but true that during the time it takes to read this article, so much new information will have been generated that you will know relatively less of the total body of scientific and technological information than you did when you began.

A brief list of some of the technological inventions that have been applied within the past three decades, and have forever altered the course of social evolution, illustrates science's power: the release of nuclear energy, oral contraceptives, microcomputers, jet planes, videotape, rockets, amniocentesis, satellites, television, tranquilizers, polio vaccine, antibiotics, DDT, transistors, lasers, and petrochemical products such as plastics. With each innovation, cultural mores that have evolved over centuries are suddenly rendered obsolete. But while our distant ancestors often had millenia to adapt to each discovery — the control of fire, toolmaking or pottery — we encounter invention after invention with such stunning rapidity that we have in fact come to expect, even anticipate, surprise and novelty and the consequent conflict with old values and customs or their replacement. And while governments attempt to cope with the problems of unemployment, inflation, and social unrest, the transcendent forces of science continue to fuel them.

Looming over all global issues are the two spectres of nuclear war and massive and irreversible environmental degradation. Stimulated in the pursuit of power and profit by scientific enterprise, the military and industry contribute mightily to these twin threats.

How then, can we come to grips with science to ensure that it is applied for the benefit of humankind?

In countries with a long and rich history of science — peopled with names like Newton, Darwin, Curie, Pasteur, Einstein, Planck, Bohr, Heisenberg and Galileo — it has been an integral part of the culture. In that sense Canada is like

the lesser developed countries, having entered the technological age only within the past half century. Lacking a culture that accepts science as an integral component, Canadians have perceived a gulf between scientific research and the life of the average person. Although profoundly affected by science, the layperson considers that it is beyond his or her ability to understand.

It is my firm belief that if they do not understand the nature of scientific research and its fundamental principles, people lose all hope of directing their own destinies. If they do not understand the scientific aspects of issues such as nuclear energy plants, environmental carcinogens, oil exploration in the Arctic, supertankers, and pollution by mercury, asbestos, or PCBs, Canadians will make ill-advised decisions about the future.

For the populations of developing countries, science holds the solutions to problems of overpopulation, inadequate nutrition, unplanned urbanization, energy shortages, pollution, lack of transportation, and poorly distributed health care. But the solutions will greatly disrupt the lives of ordinary people. In order to anticipate and direct these disruptive changes, the public must be familiar with science. Here television and radio have a key role to play. Ideas in science — whether it is black holes, the structure of atoms, the ecology of our skin, or the function of the brain — are as awesome and mindstretching as the most imaginative work of fiction. Numerous polls and surveys attest to the broad appeal of programs dealing with science, medicine, and nature. As well as entertaining and educating, such programs demystify the scientist, revealing him or her as a fallible human being with emotions and limitations. Such programs can also reveal the nature of the relationship between science and industry, medicine, the military, or other sectors that will apply that knowledge. It is only by bringing science into the mainstream of daily life and removing the mantle of mystery surrounding scientists that people will be able to make science benefit all humanity. □

*A distinguished geneticist and professor, Dr David Suzuki is the host of popular radio and television programs that aim to promote a better public understanding of science.*