

Business Briefs

Technology

Japan launches first MHD-propelled ship

A Japanese research consortium ran the first test of the first ship propelled by magnetohydrodynamics (MHD) at the end of June. The *Yamato 1* successfully demonstrated the use of a propulsion with no moving parts.

According to the July 1 *Washington Post*, the nearly 100-ton ship uses the principles of MHD to propel water out of a tube under the hull, rather than push it using a propeller. This allows the propulsion system to be silent. There is no periodic propeller sound which can be picked up by sonar. It is a "stealth" ship similar to that portrayed in the anti-submarine warfare novel and film *The Hunt for Red October*.

MHD propulsion is more energy efficient than conventional systems, and also avoids the problem of cavitation, or turbulence produced by a propeller, which limits the speed of a ship. The Japanese expect to build ships with a top speed of 125 miles per hour.

The use of MHD for ship propulsion requires large superconducting magnets, which have only been experimental in other, stationary MHD devices. The Japanese have developed superconducting magnets for their magnetically levitated transport systems, and will continue to work on higher-temperature superconducting materials. These do not need to be kept just 4° above absolute zero as does the liquid helium coolant used in today's superconducting magnets.

Health Care

Canadian economy heading toward 'catastrophe'

A 300-page working document prepared for Canada's federal and provincial ministers of finance and health shows that governments at all levels have lost control of the public debt and, in particular, health care costs, and that the Canadian economy is heading toward a ca-

tastrophe in coming years unless major corrective measures are taken.

Michel Audet, editor of *Le Soleil*, a Quebec-based newspaper, reported June 19 that aside from debt service, health care is now the principal absorber of Gross National Product. According to Audet, "the recourse to abusive treatment using high technology" is partly to blame.

A debate has now broken out among the ministers and in the news media in Canada over what health services, and health services for whom, should be cut. The word "euthanasia" has even been used.

Meanwhile, in a move with more localized impact, the federal government recently resolved to abolish Newfoundland. A decision to ban all cod fishing along the Newfoundland and Labrador coasts effectively halts the region's main industry, which fishing sources estimate to be 70-75% of the provincial economy when spinoff employment is taken into account. Various media have said that the fishing industry directly produces 6% of the province's output.

This attempt to replenish falling cod stocks will result in immediate unemployment for 20,000 fishermen.

AIDS

Pandemic on the march, says Harvard study

A new study to be released in August by the Global AIDS Policy Coalition, based at Harvard University, warns that the spread of the "AIDS pandemic is increasing." The Harvard report states that the magnitude of the pandemic has increased a hundredfold since AIDS was first discovered in 1981. By early 1992, at least 12.9 million people around the world, including 7.1 million men, 4.7 million women, and 1.1 million children, will have been infected with HIV. Of these, about one in five have developed full-blown AIDS, of whom nearly 2.5 million have already died.

The study estimates that by the year 2000, between 38 and 110 million adults and over 10 million children will be HIV-infected, while

24 million adults and several million children will develop AIDS—up to 10 times as many as today.

The number of children orphaned by AIDS will more than double in the next three years, from approximately 1.8 million today to 3.7 million by 1995.

In just five years, the cumulative number of HIV-infected Africans has tripled, from 2.5 million to over 7.5 million today.

And HIV is spreading quickly into other areas. An explosion of HIV has been reported in Thailand, Burma, and India, where within only a few years, over 1 million people have become infected. China, Pakistan, the Philippines, and Indonesia are also on the verge of national epidemics.

The study reports that the most recent World Health Organization (WHO) figures for Asia are too low. The WHO estimates that 2-4 million Thais will be infected by 2000, over 50% of them women; the report puts the figure at 3-6 million. The first AIDS case was diagnosed in Thailand in 1984. Non-official estimates put current HIV infection levels at 500,000—almost 1% of the population of 55 million.

In India, at least 1 million people are AIDS carriers, and a Madras expert, Dr. Jacob John, puts the level at 2.5 million. Most affected, as in Thailand, are prostitutes and drug users, where AIDS is spreading rapidly. In 1986, only 1% of Bombay's 100,000 prostitutes were infected; now it is 35% in the state of Manipur. About 25% of some 40,000 drug addicts are infected. In a random test of blood supplies in New Delhi last year, 499 HIV-infected units were found.

Russia

West wants 'raw materials appendage'

A top Russian labor leader has warned his country that President Boris Yeltsin's government is cooperating with western nations whose aim is to turn Russia into their "raw materials appendage."

Boris Kagarlitsky, the chairman of the re-

cently founded left-wing Labor Party, in an interview with *Delovoi Mir* on June 24, said that it was his view that the "government is pursuing . . . two goals: to ruin the public sector of the economy by all means and to submit the national economic interests to the interests of the International Monetary Fund (IMF). The IMF, however, is only seeking to turn Russia into a supplier of cheap raw materials."

Kagarlitsky said that the IMF's promised \$24 billion in credit, "means turning Russia into a raw materials appendage of the West."

Kagarlitsky, asked how he sees Russia's internal situation by year's end, replied, "As soon as the wave of bankruptcies rises, which may be expected any moment now, it will cause large-scale unemployment accompanied by a wave of protests." He said this would cause a further deterioration in living standards, leading to the possibility of the government establishing "dictatorial rule in order to cope with those sentiments. I think a police regime may be established in Russia by this coming winter."

Kagarlitsky added that demonstrations staged by Stalinists "are playing into the government's hands. The authorities need a pretext to establish a police regime, and the Stalinists are creating such a pretext."

Science

Develop new method of monitoring diabetics

A new method of determining the level of glucose in the blood system of diabetics is being researched at Sandia National Laboratory in collaboration with the University of New Mexico. With the aid of technology developed for nuclear weapons, researchers have shown it possible to use a painless light flash to measure how much glucose is circulating in the blood stream.

The discovery has not yet been engineered into a practical monitoring system, but could replace the painful needle pricks of the finger that an estimated 2.5 million diabetics in the United States endure, sometimes several times a day, to obtain a drop of blood for glucose-

levels testing.

The test uses a flash of light in the near-infrared wavelengths, the part of the light spectrum that can penetrate flesh. Different chemicals, such as glucose, will absorb different wavelengths as the light passes through the finger. The amount of glucose can be determined by analyzing the pattern of wavelengths absorbed and passed through the finger.

Sandia bases the test's feasibility on software technology called chemometrics, which can analyze the extremely complex light absorption patterns. Chemometrics was originally developed to monitor the aging of nuclear weapons.

Energy

Westinghouse submits plan for new nuclear reactors

Westinghouse Electric Corp. formally submitted plans for the next generation of modular nuclear reactors to the Nuclear Regulatory Commission (NRC) on June 26. The AP600, which could receive NRC approval by 1995, is expected to revive the moribund U.S. civilian nuclear energy industry. The proposed reactor is "passively safe," immune to operator error, and constructed with far fewer parts than conventional nuclear power plants.

"Certification of the AP600 and the other designs [by General Electric] . . . is the next important step toward meeting the administration's goal of an order [from an electric utility] by 1995 and deployment at the turn of the century," said Assistant Energy Secretary William Young. "This is necessary to help satisfy the nation's growing electric power needs in the post-2000 time frame."

Westinghouse says it could build a 600-megawatt AP600 plant for less than \$900 million in 1990 dollars, which would make it competitive with a natural gas plant, because its fuel costs much less. "We are totally committed to moving forward very aggressively" with regulatory approval and marketing of the AP600, said Westinghouse vice president Nathaniel D. Woodson.

● **AN ANIMAL LIVER** transplant patient's condition has been upgraded from critical. Doctors said that the anonymous patient, who received the liver from a baboon in an operation at the University of Pittsburgh in June, is now improving. The patient's own liver had been destroyed by hepatitis B.

● **RUSSIA** is undergoing a demographic implosion, which is fueling Russophile and pan-Slavic propaganda about a threatened "extinction of the Russian race," the French daily *Libération* reported. The Demographic Center of the Russian Academy of Sciences claimed that the Russian population is now decreasing by 196,000 people per year.

● **RATS** are breeding in plague proportions in Sydney, Australia and sparking fears of an outbreak of disease.

● **SOUTH KOREA** plans to build 18 more nuclear power plants, Energy Resources Minister Chin Nyom is quoted by Yonhap, the South Korean news service. "The government will effectively deal with the international move to restrict the use of fossil fuels by supplying LNG [liquefied natural gas] nationwide and building 18 nuclear power plants from 1995 to 2006." Korea now has nine nuclear power plants.

● **EIGHT STATES** signed a Black Sea Economic Cooperation Pact June 25 in Istanbul, Turkey. They include Turkey, Russia, Georgia, Armenia, Bulgaria, Romania, Ukraine, and Greece. The pact focuses on "infrastructural priorities, energy, natural resources, and industrial potential."

● **SHIPS LOST** at sea rose in number by 37% in 1991, to 258 ships, the latest annual report of the *Lloyd's Register of Shipping* reports. Total tonnage of shipping lost rose 27%, and represented 0.35% of the world fleet. The death toll more than tripled, to 1,204. Authorities blame the rise on aging hulls.