From a sow's ear ...

Tokyo

JAPAN may have at last discovered what to do with its ill-fated nuclear-powered ship *Mutsu*, which has been sitting in port for most of the past 23 years. According to recent Japanese newspaper reports, the Science and Technology Agency plans to covert *Mutsu* into the world's largest oceanographic research vessel by ripping out its nuclear reactor and replacing it with a diesel engine.

Mutsu has a sad history. After launch in 1968, it took six years before local fishermen, who feared radioactive pollution, allowed the ship to set sail on its maiden voyage. No sooner had *Mutsu* put to sea than its reactor developed a leak. The crew desperately stuffed socks and rice into the reactor to try to stem the flow of radiation while the government offered the local fishermen in *Mutsu* City large sums in compensation to allow the ship back into port. They eventually agreed, but only on condition the ship leave afterward.

Mutsu was then towed from port to port in search of a home. But the ship was welcome nowhere, and after 14 years *Mutsu* returned to a custom-built port near its home city, where its presence is toler-

ated by suitably compensated fishermen. Last year, the Japan Atomic Research Institute, which runs the ship, cranked up the reactor (now encased in thick concrete) and took the ship on a few test runs in the ocean. But with no future plans to develop nuclear-powered ships, the government is in a quandary as to what to do with *Mutsu*, which has cost about ¥120,000 million (\$930 million) so far.

Thus the plan to covert *Mutsu* into a diesel-powered oceanographic vessel. Japanese newspapers say the Science and Technology Agency has calculated that *Mutsu* can be converted to diesel power for less than half the ¥10,000 million it would cost to build a new ship of the same size (past expenditures on *Mutsu* excluded). And at 8,242 tons, the refurbished *Mutsu* (suitably renamed to erase memories of the past) will be by far the biggest oceanographic research vessel in the world.

Agency officials refuse to confirm the reports. They say conversion to diesel power is just one option under consideration and no final decision has been made. Meanwhile, *Mutsu* waits patiently in port.

David Swinbanks

The *Mutsu* undergoing its first nuclear power test

INDIA

Saving female babies

New Delhi

USE of prenatal diagnostic (PND) techniques to determine the sex of a fetus has been prohibited under legislation introduced in the Indian parliament. It also bans advertisements of such tests and threatens violators with a fine of Rs10,000 and a three-year jail term.

The legislation is aimed at controlling the abortion of female fetuses. In a society where boys are preferred to girls, a growing number of private clinics have been set up to determine the sex of a fetus and help pregnant women undergo selective abortion of females. According to unofficial sources, some 2,300 such abortions take place every year in Bombay alone, and these clinics have begun to spring up even in semi-urban towns.

Under the new law, PND tests will be permitted only on medical advice for the purpose of determining genetic diseases, congenital anomalies, chromosomal ab-

normalities, and so on, but not fetal sex. Laboratories offering the tests must register with an appropriate authority. No doctor can conduct the tests on a pregnant woman unless she is either above the age of 35, has a history of spontaneous abortions, has been exposed to radiation or teratogenic agents or has a family history of mental retardation. Violation of any of the provisions of the law will land the doctor, as well as his patient, in jail.

To ensure that PND techniques are regulated according to the new law, the government plans to appoint a 14-member supervisory board headed by the minister in charge of family welfare. Each state will have a special committee to grant or suspend registration of laboratories, investigate complaints and enforce standards. All existing clinics that offer PND tests have been asked to register within six months or close down. It is likely that many will close down.

K. S. Jayaraman

Lessons from Japan

London

BRITAIN'S effort in high temperature superconductivity research and development may be dwarfed by the huge investment in equipment and manpower in Japan's industrial laboratories, but the prospects for a UK superconducting device manufacturing industry need not be bleak. British researchers still excel in certain niche fields that may be commercial hotbeds in years to come, and other niches are not yet full, according to a group of leading UK superconductivity researchers who have just returned from a government-sponsored fact-finding mission to Japan.

Gordon Donaldson, who led the mission, says that Japanese industry has a great "strength in depth" in superconductivity research.

But Donaldson says that the leading British research groups still compare very favourably with the best Japan has to offer, although he is concerned that too few British companies are working on applications for high temperature superconductors. He also warns that if Britain is to compete in commercializing high temperature superconductors, companies need to make better use of the country's major asset in the field: the handful of world-class superconductivity research groups in British universities and government laboratories.

The result is that the entire UK effort to commercialize the materials is extremely vulnerable, depending on the success of just a few companies, he says.

But Alford hopes to convince British industrialists that there are still profits to be made in high temperature superconductivity — provided that companies focus on those areas where British researchers excel, and work closely with academic research groups.

Donaldson singles out work on superconducting quantum interference devices, and microwave communications equipment using superconducting components, as British research strengths that hold commercial promise. (Alford's company already collaborates with groups at the University of Birmingham and the University of Manchester Institute of Science and Technology, in developing radio-frequency microwave communications equipment, but few other British companies have followed this example.)

The team also spotted one field where British industry has a chance to grab a market. Several Japanese companies are already working on silver clad high temperature superconducting wires, but there are fears that these products may not be made available to foreign companies. When the world develops a taste for high-temperature products like small superconducting magnets, high-quality superconducting wire may be in hot demand outside of Japan. Peter Aldhous