own funds in developing the device and more recently in responding to the unexpected twist that their development plans have taken. Under the 21 April secrecy order, discussion, publication, marketing, and manufacture of the invention are all prohibited.

Nicolai says he recently moved into a house costing only $10,000 in order to free up funds to spend on the project. The other inventors, some of whom have advanced degrees and one of whom is a professor at the Naval Postgraduate School, tell similar stories of volunteered hardship in order to pay for the development project done on their own time.

Their lawyer, Stephen Baldwin of San Francisco, told *Science* that the inventors are first seeking a "procedure" by which they can have an opportunity to rebut the government's conclusion that "disclosure" of the application "might be detrimental to the national security." Baldwin said the inventors may then decide to protest the order through formal channels, and ultimately to the courts, although this would be "expensive." He admitted, however, that a court test "might" involve questioning the legality of aspects of the 1952 law under which secrecy laws are issued. (At the time of the DaVida incident, the Chancellor of the University of Wisconsin, Werner Baum, noted that the law might be unconstitutional.)

In addition, the inventors have maintained their dialogue with the government through a Washington representative, Peter Olwell, and through the office of their Senator, Warren Magnuson (D–Wash.), who has inquired into the matter on their behalf.

These inquiries have turned up the fact that the NSA requested the secrecy order to be issued, along with other information about a completely obscure government procedure that may receive more public scrutiny, and perhaps even a court test, if other inventors begin protesting secrecy orders too.

In interviews with *Science*, Patent Office officials stressed that they do not make the judgment as to whether a secrecy order should be issued for a given patent application. Under the terms of the 1952 law, the office merely makes the applications "available for inspection" by defense agencies and follows their instructions as to whether an order should be issued. In reality, this is done by categorizing the 100,000 applications that come in yearly by technical field. Applications that fall into certain technical fields are shown to representatives of the Army, Navy, Air Force, and NSA, and Department of Energy, who review them at the patent office. These officials can request secrecy, or forward applications to a Pentagon group, the Armed Services Patent Advisory Board, whose member agencies use their own technical experts to judge them. If any agency judges a secrecy order to be needed, one is issued. In the case of the Nicolai patent application, for instance, Olwell, the inventors' Washington representative, has learned that the NSA recommended secrecy, the Army found no reason for it, and the Navy and the Air Force concurred with the NSA.

However, everyone seems to agree that there is great confusion over what a secrecy order entails. This is an area in which the Seattle inventors are concerned that their rights may be violated. Most importantly, the order is issued without any explanation or justification, a position that some people maintain is a denial of the right to due process. This is the reason that Baldwin, the inventors' attorney, believes that a fair procedure should be developed whereby the inventors can learn the justification for the order and have a chance to rebut it if they wish.

Raike, the inventor who is also a tenured professor, is also concerned about what the order implies for his research. The order's language says "you are ordered in nowise to publish or disclose the invention or any material information with respect thereto . . . in any way to any person not cognizant of the invention prior to the date of the order."

New Smallpox Case Seems Lab-Caused

Another laboratory accident involving smallpox has occurred in Britain, the second such incident in 5 years.

The victim is Janet Parker, a 42-year old laboratory photographer who works in the Birmingham University Medical School.

The world's last known case of endemic smallpox occurred in Merka, Somalia, on 26 October 1977. If no further cases are found for 2 years from that date, the World Health Organization will be able to crown its decade-long eradication program by declaring the world free of smallpox.

Laboratories would then be the sole remaining source of smallpox virus, and WHO has been trying for the last 3 years to persuade researchers to turn in or destroy their stocks (*Science*, 28 July 1978). The Birmingham laboratory is one of 14 in the world which still maintain stocks.

An unusual feature of the Birmingham case is that the technician was not working in the laboratory where smallpox virus was being handled but in a room on the floor above. Airborne transmission of this sort has occasionally been reported to occur in hospitals but in a laboratory setting is "very unusual," says Stanley O. Foster, a smallpox expert at the Center for Disease Control in Atlanta.

Janet Parker developed a fever on 11 August and was confined at home. She was admitted to hospital on 24 August, where her disease was diagnosed as smallpox. All people she came in contact with are now under surveillance.

The smallpox virus was being manipulated in the department of medical microbiology of the Birmingham medical school. The researchers are understood to have been trying to characterize a smallpox variant known as white pox by comparing it with a standard strain. Parker has contracted the standard strain. The laboratory had been planning to destroy its stocks of virus before the end of the year.

An earlier laboratory-related accident with smallpox occurred in 1975 at the London School of Hygiene and Tropical Medicine. A laboratory worker became infected and transmitted the disease to two outsiders, both of whom died.

The new case is likely to give impetus to WHO's campaign to confine laboratory stocks of smallpox virus to four designated reference centers. "We must be even more strict and the laboratories must be even more careful than ever," says Joel Breman, a smallpox expert at the WHO in Geneva. Besides the CDC, which is designated one of the four reference centers, the two other American laboratories still maintaining smallpox virus are the American Type Culture Collection and the U.S. Army Research Institute of Infectious Diseases.—N.W.

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