His Soviet counterpart, Victor L. Issraelyan, denied the charges equally energetically. He called claims about the violation of the treaty "ungrounded and farfetched," and described U.S. allegations as "inventions from beginning to end."

Both sides, however, made clear that they wanted to see the effectiveness of the Biological Weapons Convention enhanced. The Soviet delegation suggested that this might best be done by adding a supplementary protocol to the convention listing specific verification measures.

The United States, wary that an excessively formal agreement could merely be used as an extra mask for clandestine research, pushed instead for a detailed description of individual "confidence-building" measures to be included in the final declaration.

After a week of negotiation, the latter view, supported by many other Western countries, appears to have prevailed. The final declaration makes no mention of the need for a new protocol, or for arrangements for a special conference to decide on its content, which some delegations had recommended. However it does contain the agreement of the signatory countries to:

- exchange information on the name, location, and principal activities of research laboratories meeting "very high national and international safety standards"—a description interpreted as referring to P4-level containment laboratories;
- exhange information on the outbreak of unusual toxin-related diseases;
- encourage the publication of results of research related to the convention; and
- encourage the active exchange of scientists involved in such research.

There was no agreement on proposals that some countries had been proposing which would give the Secretary-General of the United Nations, or perhaps some outside bodies, the power to investigate complaints without having to pass through the Security Council, as laid down in Article V of the convention.

However, the final declaration does say that, after a complaint has been lodged with the Security Council, the council may request the advice of the World Health Organization in carrying out an investigation, given the technical agencies' acknowledged expertise in dealing with toxins.

In a brief statement to journalists at the end of the meeting, U.S. ambassador Lowitz said that the United States had approached the conference in both a "critical and constructive way," and he hoped the measures approved in the final declaration would lead to "greater transparency and openness" in the operation of the convention. ■ **DAVID DICKSON**

Red Tape Snarls Soviet Research Ship

An effort to encourage international participation in an oceanographic research cruise was foiled by snafus in obtaining docking permits

San Francisco

An ambitious and unusual Soviet attempt to attract international cooperation in oceanography and marine geology has run smack into a wave of frustrating red tape. On 4 September, the big white research ship Akademik Aleksandr Vinogradov, under U.S. Coast Guard order, was sent summarily back out into the fog sweeping San Francisco's Golden Gate Bridge. It had been in port 2 days.

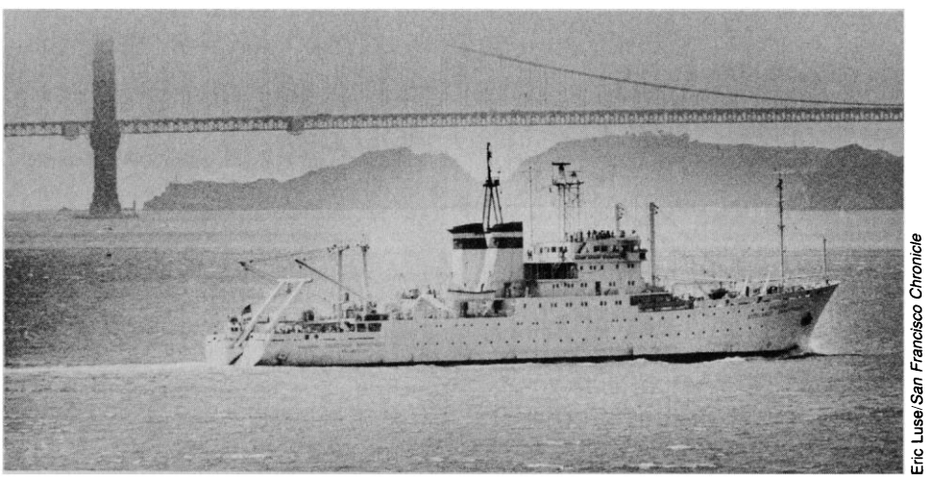
The twin-funneled ship, according to its schedule, is now sampling water and bottom sediments a few hundred miles off the Oregon coast in an area of ocean-floor spreading called the Juan de Fuca Ridge. The area the ship is working is just beyond the American Exclusive Economic Zone, where U.S. researchers are doing similar work.

If proper permits can be obtained, the ship's complement hopes for a return port call in San Francisco, or a stop in Los Angeles, or perhaps Vancouver, British Columbia, before returning to the Soviet Union later this month. The confusion over its itinerary is consistent with its experience so far.

The Coast Guard told the ship's master to leave port 2 days earlier than its crew plus scientific staff of some 110 people expected. The episode is just the latest of what is, for the scientific chief on board, a most frustrating voyage. Nobody, it seems, really wanted the ship to leave San Francisco so abruptly, most particularly U.S. researchers eager for a longer visit and the approximately 80 men and 30 women on board who had been poring over San Francisco tourist guidebooks for weeks.

If nothing else, the affair shows how easily international science schemes can founder on a few errors in paperwork. In both Japan and the United States, hoped-for rendezvous with foreign specialists invited to spend time at sea on the ship were missed—in Japan because the ship failed to get proper clearance to tie up in port, in San Francisco because somebody on the Soviet side neglected to tell the U.S. State Department how long the Soviets wanted to remain.

Rather than the anticipated 30 foreign scientists on board during the course of the voyage, the Soviets wound up with one so far—Ronald K. Sorem, a retired geology professor from Washington State University in Pullman and now a consultant on mineral resources and economic geology. He went aboard in July in Hilo, Hawaii, after earlier missing the ship in Japan, and is still there.



Eric Luse/*San Francisco Chronicle*

The Akademik Aleksandr Vinogradov. *Summarily dispatched back into the fog sweeping the Golden Gate Bridge.*

The 4-month expedition is the eighth scientific cruise of the modern 364-foot ship, launched in Poland in 1982 and named for a geochemist, a former vice president of the Soviet Academy of Sciences who died in 1975. It is operated for the Vladivostok-based Pacific Oceanological Institute, part of the Far Eastern Science Center of the U.S.S.R. Academy of Sciences. It left Vladivostok on 18 June on a schedule that called for stops in the ports of Hakodate in Japan, Hilo, San Francisco, and Vancouver before returning to the Soviet Far East.

En route, its scientific complement is running a wide range of experiments. They are studying water chemistry, gathering samples of manganese nodules and cobalt-rich manganese crusts from seamounts, and studying water and bottom chemistry around seafloor spreading zones where polymetallic sulfide deposits rich in minerals are formed by hydrothermal vents, or hot springs heated by shallow magma bodies.

American visitors found a ship much larger than the typical Western survey vessel. Its 25 separate laboratories, each devoted to specific kinds of studies, reflect more compartmentalization of research than occurs in comparable U.S. ships. Equipment, said one visitor, appeared functional and complete. The ship was commodious, comfortable, and clean; many of the companionways are carpeted and the labs are spacious.

Chief scientist is Michail Fedorovich Stashchuk, professor and director of the institute's Laboratory of Mineral Formation Processes. He was found, an hour or so before the ship's unwelcome but not exactly unfriendly expulsion, sitting in his three-room quarters over a lunch of cold cuts and red caviar with a few visiting colleagues from the U.S. Geological Survey Branch of Pacific Marine Geology in Menlo Park.

Stashchuk, an engaging and friendly man with a large shock of gray hair, explained through an interpreter that planning for the expedition began well over a year ago with international cooperation and participation a prime goal. The outreach effort was his own idea, with approval obtained from appropriate officials at the Far Eastern Science Center and from the Academy of Sciences in Moscow. An American researcher, geologist Stephen Eittreim, assistant branch chief for marine geology at the USGS center in Menlo Park, called it "a real rare chance to see how these guys do business."

Plans for international participation began to run into snafus from the voyage's start. Several researchers from Hokkaido University, plus Sorem, were to join the ship in Japan. However, when it approached the coast of Hokkaido, it turned out that Soviet officials had failed to get a docking permit. The ship then waited a day for a courier boat just outside Japan's territorial waters, but Stashchuk said telegrams to his intended Japanese guests telling them how to reach the Vinogradov were not delivered. He blamed vague "communication problems." Sorem, too, did not know how to reach the ship.

Samples were taken from a western Pacific seamount called the Lamont Guyot. But without Japanese specialists on board who were particularly knowledgeable about the site, the Soviet researchers were not sure they got what was wanted.

After the Hilo stop in mid-July, the ship sampled several areas in the region of manganese nodules called the Clarion-Clipperton Fracture Zone, calibrated its instruments at a spot called the GEOSECS site off the coast of Mexico used for such purposes by marine researchers, then arrived in San Francisco on 2 September. At dawn on 3 September, nearly everybody on board headed for Chinatown and a ride on the cable cars, saving serious touring for later in the week.

That afternoon, the U.S. Coast Guard office in San Francisco told the ship's American agents it was overdue to leave, had gotten a permit good for only 1 day, and had to go immediately. The ship's master contacted the Soviet consulate in San Francisco, crew members said, and learned "some confusion was done in Moscow."

At the Soviet Affairs Desk at the State Department in Washington, where visits by research vessels must be cleared in advance, Bruce Connuck said that in fact such a permit had been routinely granted more than a month earlier. However, it had named only one date, 2 September. "I thought that was funny at the time, just 1 day, and contacted the Soviet embassy. They confirmed the date." Using just one date on the port visit application, however, limited the ship to that date and that date only. For reasons that are not clear, this was not explained to or not understood by Soviet officials getting the ship's clearance. At the Soviet consulate in San Francisco, Vice Consul Yuriy Shuyskiy said by the time he heard of the problem, it was too late to do anything about it.

When the ship left from a remote, out-of-the-way corner of San Francisco's southern waterfront where it had tied up, at least one American researcher due to join it was not aboard. He was flying from the East Coast and nobody could reach him to tell him the ship was leaving 2 days early. ■

CHARLES PETIT

Charles Petit is a reporter with the San Francisco Chronicle.

Briefing:

NIH Considers Major Change in Definition of Recombinant DNA

The National Institutes of Health's Recombinant DNA Advisory Committee (RAC) is studying a proposal to redefine recombinant molecules for purposes of regulation under NIH guidelines. Since the inception of recombinant DNA technology more than a decade ago, the term has been used to include the modification of genetic information within an organism as well as the introduction of DNA from one organism into another. Under the proposed redefinition, which was debated at the RAC's most recent meeting on 29 September, for purposes of NIH oversight, the term recombinant DNA would be used to mean only those organisms that have been genetically modified by foreign DNA. Thus, genetic modifications made by altering only material within an organism—a gene deletion or rearrangement, for instance—would, in most but not all cases, become exempt from review.

The proposed revisions were hotly debated by RAC members who have not reached a consensus on the issue but will consider it further when the committee meets again in February.

By a near unanimous vote, the RAC did, however, endorse a proposal to amend the NIH recombinant DNA guidelines with respect to oversight of the environmental release of a certain class of organisms. Already, organisms modified by gene deletion or rearrangement have, in general, been exempted from oversight when they are used only in research. Under the new amendment, these organisms would also be exempt from RAC review prior to experiments involving release into the environment. The so-called "ice-minus" experiment to test frost-free potatoes in the field would not be subject to RAC review under the amendment, for instance. However, RAC members emphasized that it would still be subject to regulation by other federal agencies, including the Environmental Protection Agency.

The amendment was introduced by RAC member Susan Gottesman of the National Cancer Institute who said that it seemed the best way to make the point that "recombinant DNA per se is not a problem," that the exempt organisms are not biologically unique, and that the change in procedure will eliminate needless regulation of certain types of scientific studies. ■

BARBARA J. CULLITON