# Is Problem of Succession Settled for Science Office at State?

The State Department has picked an insider to be Assistant Secretary of State for Oceans and International Environmental Affairs (OES) to replace Patsy T. Mink who resigned in April. Although not yet announced by the White House, the choice is reliably reported to be Thomas R. Pickering, a career foreign service officer (FSO) who is now ambassador to Jordan.

The selection of Pickering is said to reflect a considered decision by Secretary of State Cyrus R. Vance that what OES needs is a leader who knows the State Department system well and can work effectively within it. The nomination lays to rest, at least for the time being, a protracted insider-vs.-outsider debate over whether the head of the science bureau should be recruited outside to bring strong scientific credentials and reputation to the job or should be a State Department career officer with proven management skills.

Two recent occupants of the OES post, Mink a former congresswoman, and Dixy Lee Ray, who came to State from the chairmanship of the Atomic Energy Commission, resigned after relatively short, unhappy periods in office (*Science*, 19 May). In a 1974 reorganization, responsibility for a number of matters, including fisheries, environment, nuclear energy, and population were consolidated in the science office. The reorganization was designed to strengthen OES, but the bureau has been repeatedly bypassed by top State officials on important policy issues involving science and technology, ignored by the regional bureaus, and consistently been the loser in internal bureaucratic bouts.

It is generally assumed that Pickering would not have taken the OES job unless Vance had given firm assurances that OES would be brought into the policy mainstream and given resources to operate more effectively.

The weakness of OES has long been a worry to a constituency in government, universities, and private foundations concerned with the role of science and technology in international affairs. Among members of that constituency who were consulted or informed about the Pickering appointment, the first reaction seems to have been dismay at the choice of a career officer with no science in his cv. However, Pickering's reputation as a comer in the department and the strong impression he made when going the rounds in Washington to discuss the job appears to have won him wide approval. There now seems to be more general support than ever before of the view that the status of the OES bureau chief among his peers is an essential factor in the standing of the bureau. As one knowledgeable university-based observer put it, "When the foreign service corps looks at this [appointment], it could change the ball game."

OES prospects for a stronger position in the department could be enhanced by legislation recently reported to the House by the Committee on International Relations. The State Department authorization bill (H.R. 12598) this year includes a section (Title V) sponsored by the committee's chairman, Representative Clement J. Zablocki (D–Wis.), designed to require and assist the State Department to make more effective use of science and technology in its operations.

A key provision mandates that the State Department coordinate all science and technology activities overseas. The bill says the Secretary of State "shall have primary responsibility for coordination and oversight with respect to all science or science and technology agreements and activities between the United States and foreign countries, international organizations, or commissions of which the United States and one or more foreign countries are members."

The Administration has not yet taken a formal position on the proposed legislation, and the Department of Defense (DOD) and Central Intelligence Agency (CIA) have expressed strong reservations that State Department coordination could adversely affect their activities affecting science and technology abroad. Negotiations with committee staff on the matter resulted in the inclusion of language in the committee report designed to deal with DOD and CIA objections, but at this point it is not clear how strong or effective the opposition will be.

The legislation is a product of a massive study conducted over a period of 7 years on the interactions of science and technology with United States foreign policy at the behest of Zablocki. The study, carried out for the committee by the Congressional Research Service and directed by Franklin P. Huddle for CRS, culminated last year in publication of a three-volume, 2000-plus page compilation of analysis and recommendations on the subject.*

The Zablocki initiative is the most vigorous and extended expression to date of a growing concern in Congress about the importance of science and technology in international affairs and of vexation with the State Department for its relatively indifferent behavior on the subject.

The House Science and Technology Committee has been active on a number of international science issues and its chairman, Representative Olin E. Teague (D–Tex.), was consulted on the Zablocki legislation. In the Senate, the chairman of the Commerce Committee's science, technology and space subcommittee, Senator Adlai E. Stevenson (D–Ill.) is showing a particular interest in international economic implications of technology transfer. Most relevant for OES is the attitude of Senator Claiborne Pell (D–R.I.), chairman of the Foreign Relations Committee's subcommittee on Arms Control, Oceans and International Environment, who was author of the OES reorganization measure.

The OES post requires Senate confirmation and Pell's subcommittee would hold the confirmation hearings. Pickering touched base with Pell and apparently made a favorable impression. Pell is said to have come around to the view that an outsider in the top job at OES will inevitably run afoul of the system and that the best bet for OES is to have an insider with a mandate to build up the bureau.

Pickering, 47, seems to fill the bill very well. He has no scientific or technical background, and, except for serving in the Arms Control and Disarmament Agency in the early 1960's in his first assignment after joining the Foreign Service, he has had no real opportunity to learn science on the job. His career, otherwise, could be a textbook case of an FSO on the fast track of early promotion and assignments that cause State Department careers to prosper. By 1967 he was deputy chief of mission in Dar es Salaam, Tanzania. He then returned to Washington to be deputy director of the Bureau of Political and Military Affairs from 1969 to 1973 and then a special as-

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sistant to the Secretary of State until 1974 when he went to Amman as ambassador. Pickering is said to be tough minded and very bright and seems to have made a positive impression on key officials he will be working with, including the President's Science Adviser Frank Press.

Hill observers say that Secretary Vance's choice of Pickering gratifies another constituency. Foreign service regulars were aggrieved at the beginning of the Carter Administration by appointments of outsiders to a number of top posts in the department. They complained bitterly to Vance that career officers were being cut off from these top jobs with a consequent serious effect on morale. These observers say that Vance more or less committed himself to appointing qualified FSO's when high-level vacancies occurred. The Pickering nomination is seen as making good on that commitment.

The Pickering appointment is a major step in the effort to bolster the position of OES, but only a step. As a long succession of analysts and advocates have agreed, what is needed is not only astute leadership and stronger resources in OES, but the diffusion of sophistication about science and technology throughout the department (*Science*, 8 April 1977). The troubles of OES have tended to restrict the focus of the discussion to the bureau.

The conversion of FSO's at large into a corps of true believers in the place of science and technology in diplomacy will

# New Study of Land-Based Aircraft

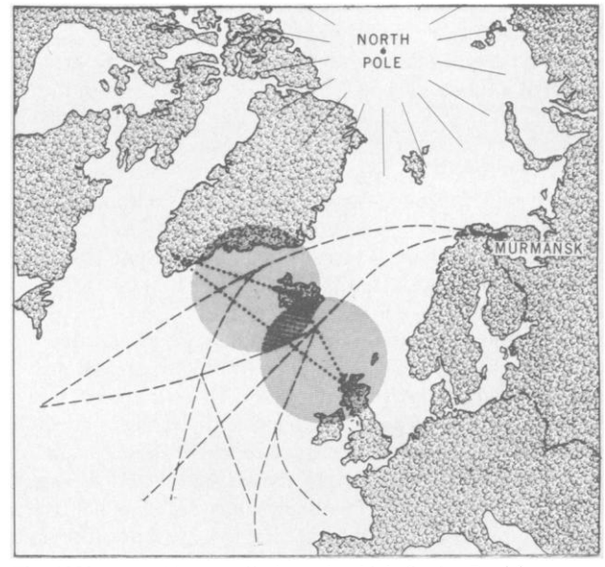
In a move that could result in reducing the number of aircraft carriers the Navy needs, the Department of Defense (DOD) is studying the possibility of using land-based instead of sea-based aircraft to counter the Soviet Union in the North Atlantic Ocean.

The use of land-based aircraft in ocean warfare has long been a pet notion of some defense analysts, but now the idea seems to be getting high level attention, both in the Office of the Secretary of Defense and on Capitol Hill. The Navy, however, has been lukewarm to the idea, possibly because it could conflict with the service's arguments for maintaining its fleet of aircraft carriers at the present level of 12 through the end of the century.

Recent statements to Congress by Defense Secretary Harold Brown indicate that he is looking with interest at the notion anyway. In a written answer to a question from Senator Sam Nunn (D–Ga.), Brown said that he is studying "longer range, greater endurance aircraft to see when or if they will be a cost-effective means of sea control either to augment or replace some carriers." And, in answer to a question from Senator Barry Goldwater (R–Ariz.), Brown wrote that he was not "satisfied" with present plans for "carriers" against penetration by Soviet aircraft over the seas. "I see the opportunity for land based air to make a significant contribution as a supplement to the sea based air," Brown wrote.

Debate on this issue is expected to heat up in coming weeks, because a major, 500-page report on the subject has begun circulating among defense leaders. The classified report is said by knowledgeable officials to be the most thorough analysis of the military and financial aspects of the problem to date. It was done by the Institute for Defense Analyses (IDA), and was commissioned in late 1976 jointly by the Office of the Director of Defense Research and Engineering* and the Office of Program Analysis and Evaluation in DOD. According to several sources, the report concludes that under some circumstances land-based aircraft can do a more cost-effective job than carriers.

The IDA report and previous studies of the subject have concentrated on the problem of defending convoys plying to and from Europe during a protracted, nonnuclear war against raids from the north by Backfire bombers, which can fly 2500 n.m. out of the Soviets' westernmost military base at Murmansk and back again (see map). Backfire has become an issue in the strategic arms talks because some people say it can reach the United States from the Soviet Union. Defense analysts disagree on this point, but most agree with the Navy that the Backfire poses a serious threat to Navy and Merchant surface ships. Defense research and engineering official William D. O'Neil expressed a commonly held view when he wrote in the Naval Institue *Proceedings*† that, as of 1976, the Soviets had 80 Backfires and planned to produce 400 of them. A substantial portion of this force, O'Neil wrote, will be devoted to naval missions.




*The 1350-n.m.-wide "gap" through which Soviet Backfires must fly (dashed lines). Two AWACS radar planes could watch raid (shaded circles) while interceptors attack (dotted lines).*

Present Navy strategy, according to defense officials, calls for "one or more" aircraft carrier groups to be sent up near the Greenland-Iceland–United Kingdom "gap" in the event of war involving Europe; the carrier's own radar and radar planes would "watch" the ocean for a Backfire bomber attack, and its F-14 fighters would be sent out against any Backfires heading southward. But other analysts are concerned that the carriers could be vulnerable in those relatively narrow waters, which, in wartime, could be teeming with Soviet submarines and surface ships,

*Now the Office of the Undersecretary for Defense Research and Engineering.

†"Backfire: Long Shadow on the Sea-Lanes," U.S. Naval Institute *Proceedings*, March 1977, pp. 26–35.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not be easy, but recently there have been signs of recognition at State that such a conversion is required. State Department officials have never argued about the importance of science and technology in principle, but now embarrassing and even threatening events are forcing them to take science and technology seriously in practice.

Two major examples make the point. U.S. foreign policy on nuclear matters, particularly as related to proliferation issues in the 1970's, has been woefully inept and inadequate. The State Department appeared to recognize the issue too late to deal with it effectively. Relations with less developed countries are profoundly affected by technology-transfer and economic development issues which have a heavy science-and-technology component. U.S. tardiness in getting preparations under way for the U.N. Conference on Science and Technology for Development, scheduled for next summer, is a characteristic example of U.S. failure to come to grips with a set of potentially explosive issues highly important to this country's interests.

The Zablocki legislation takes the broad dimensions of the problem into account. The bill says that the government should consult with industry, the universities, and other research institutions concerned with modern technology in formulating and carrying out technological foreign policy. To do this and to assess the opportunities and threats implicit in technological change, the bill authorizes the department to make a va-

# Questions Need for Aircraft Carriers

many armed with precision weapons. Moreover, the Soviets might attack the carriers if they moved northward, appearing to loom within striking distance of Soviet territory. As one expert said, "A country that will shoot at a Korean passenger plane straying over it in peacetime is unlikely to sit by while an American carrier comes within striking distance in time of war." Even Secretary Brown has told Congress that the aircraft carriers become more vulnerable as they approach closer to Soviet territory.

Published studies by O'Neil, by Dov Zakheim of the Congressional Budget Office, and allegedly the classified IDA report, all suggest that the United States turn the geography of the Greenland-Iceland–United Kingdom "gap" to advantage by stationing existing giant radar planes, known as Airborne Warning and Control System (AWACS), over the region to "see" any sign of a Backfire raid. The planes would then move south with the raid; they could be equipped with long-range Phoenix missiles to protect themselves.

The radar would keep ground-based intercept planes apprised of the situation, and these ground-based planes, having greater speed than the F-14, could take off and meet the Backfires in half an hour or less. Various studies emphasize different aircraft for the intercept role: O'Neil's articles stress the long-range, giant, all-purpose plane known to friends and detractors as the "Big Mamma"; Zakheim's study suggests groups of F-14's, F-111's, or the Lockheed titanium YF-12A. The IDA report is said by knowledgeable officials to favor the F-12B (another version of which Lockheed built as the SR-71, long range reconnaissance plane which holds world records for speed and range). Lockheed is reported to have a proposal to develop the F-12B for the anti-Backfire role.

According to published sources, an F-12B could fly 2500 n.m. at Mach 3—so could cross from Greenland to Scotland even if Iceland was not available.

According to these studies, Soviet surface vessels and submarines north of the Greenland-Iceland-United Kingdom gap would be attacked by U.S. submarines and existing land-based antisubmarine planes equipped also with anti-ship weapons. So the role remaining to the aircraft carriers would be to stay south guarding the convoys, or go elsewhere on other missions.

It is this last point—the relegation of the carriers to low-threat areas in the open ocean, instead of introducing them into the main battle area off Greenland and Iceland—that may seem most threatening to the Navy. Other documents from the Office of the Secretary of Defense have also implied the relegation of the carriers to important, but secondary roles. Moreover, if the above logic were applied to the Pacific, and land-based aircraft found to be effective against Backfires coming out of the Kamchatka Peninsula, still fewer aircraft carriers might be needed in the future.

Knowledgable sources offered the following estimates of cost savings. The land-based air wing (of 50 interceptors, 12 AWACS, and three bases) could cost $3.2 billion to build, whereas to build two carrier groups could cost $9.6 billion. If the Navy merely discontinued use of two carriers in the late 1980's and 1990's, the savings of $17 billion in 15-year operating costs would more than offset the $6 billion cost to buy and operate the new air wing.

*Science* requested comments from the Navy about the long-range, land-based aircraft proposals that are on the public record, and about the carrier's ability to fight Backfires, but the Navy declined the request.

It is known, however, that the Navy leaders feel that the vulnerability of its carrier force in high-threat areas, such as near Greenland and Iceland, have been greatly exaggerated, and that by the 1990's, with added defensive measures, carriers will be less, rather than more vulnerable than they are today. And one Navy officer, writing a rebuttal to O'Neil's *Proceedings* article (which had concluded that land-based air looked a promising alternative) has noted that the convoys can be protected other ways (such as by blinding Soviet satellites and hide-and-seek tactics) and that the carrier's F-14's really can meet the Backfire threat.

Critics of the proposal note that the Soviets could rapidly develop an anti-air missile capable of downing the AWACS and the interceptors, and that the Administration has said it would keep the present number of carriers through the 1990's.

Besides its implications for the carrier force, the long-range, land-based aircraft proposal raises another sensitive issue: whether this new task should be carried out by the Air Force instead of the Navy. Air Force witnessess have testified on the potential of long-range aircraft, although, by law, any missions under, on, or above the seas belong to the Navy. But it is also clear that if proposals for long-range, land-based aircraft gain ground in coming months, and if the Navy starts protesting that they cannot or should not be put into effect, someone will start asking whether the Air Force shouldn't do this job instead.

—DEBORAH SHAPLEY

# Handler Protests Orlov Trial

Some American scientists and scientific organizations, including the National Academy of Sciences (NAS), are coming to view the just-finished trial of physicist Yuriy F. Orlov and the forthcoming trials of scientists Alexander Ginsburg and Anatoliy B. Shcharanskiy, as a watershed in the scientific relations between the United States and the Soviet Union.

Orlov, a high energy physicist who has been active in human rights causes in the Soviet Union, was given the maximum sentence on 19 May on a charge of "slandering the Soviet state" after a closed trial in which no record was allowed to be kept, in which no foreign observers were allowed, and in which Orlov was not allowed to call witnesses in his own defense.

After the sentencing, NAS president Philip Handler, who previously has advocated private protests to the Soviets, made a public statement that said, in part, "We have repeatedly informed Soviet authorities that the issue of human rights threatens to erode the willingness of American scientists to cooperate with their Soviet counterparts. . . .

"Should the trials of Ginsburg and Shcharanskiy turn out similarly, Soviet-American scientific relations will have been profoundly damaged."

Ginsburg and Shcharanskiy are colleagues of Orlov's who also participated in the unofficial group in the Soviet Union that monitors the government's compliance with the Helsinki accords. Shcharanskiy has been charged with treason and accused of working with the U.S. Central Intelligence Agency. The Soviets have intimated that trials of both men will take place soon, and the Carter Administration, which has made statements attacking Soviet abuses of human rights, has said it views both trials as serious matters.

Also in the wake of Orlov's sentencing, several leading scientists cancelled forthcoming trips to the Soviet Union and sent cables and letters of protest to Soviet authorities announcing their decision.

A 19-member scientific delegation due to depart for the 6th joint symposium on condensed matter theory in Moscow beginning on 22 May unanimously decided to cancel the trip. It was to be held under the official US/USSR science exchange program and had been organized by the NAS. A cable sent by the group's cochairmen, William F. Brinkman of Bell Laboratories and Elihu Abrahams of Rutgers University, to their Soviet counterparts said that they felt "distress" about the outcome of the Orlov trial. "There is a strong conviction that the present atmosphere has made useful scientific discussions impossible," the cable said.

Two other scientists also cancelled trips. Nicolaas Bloembergen, professor of applied physics at Harvard, cancelled and wrote, "If the impending trials of Ginsburg and Shcharanskiy are conducted in a similar manner, the effectiveness of the scientific exchange agreement between our Academies will be further jeopardized."

Robert Marshak, president of the City College of New York, who is also a physicist, cancelled a forthcoming visit to attend a Soviet seminar on field gauge theories. His cancellation and accompanying cable of protest was particularly noteworthy as he was one of the first Americans to reopen exchanges with the Soviets in 1956 during the Cold War. In the intervening years, Marshak has been a strong supporter of continued cooperation with the Soviet Union.

So it seems that these leaders of American science are treating as a "package deal" all three trials and plan to judge the Soviets' willingness to accommodate Western concerns by the outcome of all three. At the same time, several of them seem vague about what they will do if, as seems likely, the Soviets use the trials as an occasion to show the West, and the Carter Administration in particular, that it will not be bullied on the human rights question.

Robert W. Kates, professor of geography at Clark University and chairman of the NAS Committee on Human Rights, told *Science*, "We are just taking this thing one step at a time. We hope there will be some mitigation of the sentence for Orlov, and we're hoping that Ginsburg and Shcharanskiy will be treated better."—D.S.

riety of arrangements for research and consultation with individuals and other institutions, governmental and nongovernmental.

To carry out its coordinating role in science and technology activities, the bill foresees the department undertaking an ambitious program of training both internally and by providing opportunities for detached service for department personnel for graduate study in colleges and universities.

The bill would leave the details to the department by delaying implementation for a year, and requiring the Secretary to spell out by 20 January 1979 budgetary and personnel requirements to carry out the objectives of the bill.

Prospects for the bill will be clearer when the Office of Management and Budget comes forth with the Administration's formal position. The military and intelligence agencies have not commented publicly on the proposal, but are said to fear that the "oversight" function given State might be construed as a "management" responsibility. Congressional sources insist that the committee was generally satisfied with present coordination arrangements between State and DOD and CIA; the legislative history of the bill, both hearings and report, make clear that the aim of the section is to achieve better coordination of the science and technology activities of civilian agencies such as the departments of Commerce, Agriculture, and Energy.

The Office of Science and Technology Policy attitude currently is a cautious approval of the general principle of the bill but no comment on the specifics. Much the same is true at State but the department is concerned about the burden of extra work the bill requires of it, and has not yet fully assessed what the implications of carrying out the new duties would be.

On Capitol Hill, the State authorization bill is expected to be acted on in the House by early June. No equivalent of Title V is in the Senate version of the bill. Zablocki and Pell have discussed Zablocki's Title V, and backers of the measure hope that the Senate will accept it substantially intact in the House-Senate conference on the bill.

Whatever the immediate fate of the bill, proponents of science and technology at State have reason to take heart. The problem of the succession at OES seems at last to have been settled. And the signal from the Secretary's office may mean that, on the subject of science and technology, the education of the State Department is under way.

—JOHN WALSH


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