stay on, he will be following a pattern that he has extended throughout the executive branch. A widespread expectation, reflected in this column last week, was that the Kennedy braintrust would dissolve rather quickly, but it now appears that Johnson was engaging in more than a matter of form when he asked Kennedy's appointees to stay at their posts. With nearly 3 years' experience behind them, they have turned into a tried and smooth-running team that can be immensely useful to the new White House incumbent; furthermore, many of them are from the liberal wing of the Democratic Party, and their presence in the administration won't hurt Johnson's efforts to win the support of the northeast urban majorities that helped put Kennedy in office.

With "let us continue" as his theme, Johnson on Monday carried through Kennedy's plan to present the annual Fermi award to J. Robert Oppenheimer, the nuclear physicist who had once been declared a security risk by the Atomic Energy Commission. Several Republican members of the Joint Congressional Atomic Energy Committee were noticeably absent from the White House ceremony, including Senator Bourke E. Hickenlooper of Iowa, who said that he could not attend "in good conscience." Oppenheimer, in receiving the award, commented that "I think it just possible, Mr. President, that it has taken some charity and some courage for you to make this award today. That would seem to be a good augury for all our futures."

The most pressing scientific decision facing Johnson is that of whether a high-energy accelerator should be built in the Midwest (*Science*, 11 October). The accelerator is so wrapped in a tangle of technical, budgetary, and political considerations that it is generally felt the issue will be resolved on the President's desk. In preparation for that decision, the high-energy physics panel headed by Norman F. Ramsey, of Harvard, was reconvened several weeks ago to see whether it could come up with a clearcut verdict. In its initial statement on the Midwest machine, the panel was rather iffy, stating that it should be built if it did not interfere with larger machines planned for the East and West Coasts. The verdict from this session hasn't been made public, but it is said to bear the same qualifications that in the past proved so puzzling to the political and budgetary decision makers.—D. S. GREENBERG

U.S.–U.S.S.R. Relations: Way Cleared for Frequency Allocations, Pact on Legal Principles for Space

American-Soviet relations in recent months have been compounded of an odd mixture of the bitter and the better. The autobahn incidents and the Barghoorn affair exuded a familiar cold war chill, but, in contrast, the past few weeks have also produced some specific indicators of a warming trend. The United States and the Soviet Union ended a long impasse in the legal subcommittee of the United Nations' Outer Space Committee, enabling the U.N. to move toward approval of legal principles governing activities in space. The two countries were also key parties in a successful international effort to allocate radio frequencies in outer space. In the field of arms control, an American-Russian agreement led up to a U.N. resolution pledging member states to refrain from placing in orbit any objects carrying nuclear weapons.

A dissonant note in this duet in cooperation, however, was struck at the time of the announcement that Yale professor Frederick C. Barghoorn was picked up by Soviet police on unspecified charges. The United States immediately postponed sending a delegation to negotiate the extension of the U.S.–U.S.S.R. agreement on exchanges in scientific, technical, educational, cultural, and other fields.

Barghoorn's release apparently cleared the way for a rescheduling of negotiations, but at the end of last week State Department officials indicated only that a meeting would probably be held soon after the first of the year, and that no firm date has been set.

The long-term effects of the Barghoorn arrest, which seems to have genuinely aroused the academic community, are difficult to gauge. National Academy of Sciences officials, who handle exchanges of individual scientists conducted under the auspices of the American and Soviet academies, report no immediate evidence of repercussions. Applications for exchange berths next year are now in, and under consideration, and so far no American applicant has withdrawn.

The evidence seems to indicate that both governments see advantages in the exchanges, and chances are that the program will be extended. Whether it will be expanded remains to be seen. An American draft agreement sent to the Russians in October suggested that a new series of exchanges of delegations in fields such as oceanography, geodesy, seismology, meterology, and geography be added, but assessment of the Soviet reaction to this proposal will have to await the new round of negotiations.

In one specialty—nuclear sciences—there has been a notable quickening in exchange activity. While a special exchange program for nuclear scientists has been authorized since 1959 as a kind of annex to the regular exchange agreement, officials say there were no actual exchanges of scientists under the sub-agreement between 1960 and this year. Then, last May, Atomic Energy Commission chairman Glenn T. Seaborg led a delegation on a tour of some Soviet equivalents of our unclassified atomic energy facilities, a tour on which the American group apparently was shown around more freely than had been expected. While he was in Russia, Seaborg also signed a 2-year extension of the memorandum on cooperation in the peaceful uses of atomic energy, which is in effect, an agreement between the AEC and the Soviet state atomic energy agency.

In recent weeks a Soviet group headed by Seaborg's opposite number, Andronik M. Petrosyants, chairman of the U.S.S.R. Committee on Utilization of Atomic Energy, has been making a reciprocal tour of installations in the United States.

More Nuclear Scientists

After the first of the year, two groups from each country are scheduled to be exchanged under the atomic energy agreement. While, in fact, Russian and American nuclear scientists have visited each others' countries under other sections of the exchange agreement during the past 3 years, the resumption of traffic under the memorandum covering nuclear science should increase the flow. This resumption seems to be ascribable both to the change in the political atmosphere and to the personalities of the two atomic energy agency chairmen.

While the partial test ban treaty is regarded by some as a kind of vernal equinox in American-Soviet relations, the agreement on legal principles for space between the two principal space powers appears more the product of 2 years of negotiation conducted in the quest for equal advantage, which passes in international affairs for the spirit of compromise.

With the Americans and Russians willing, the United Nations General Assembly late in 1961 adopted a resolution which had the effect of internationalizing space. Then, last spring, the superpowers agreed on a three-part program of technical cooperation in space. Until last summer, however, the U.S. and the U.S.S.R. deadlocked on a formula for extending international law to outer space. The Soviets held out for the adoption of broad general principles of space law, while the United States was equally adamant in insisting that humans had so little experience in space that they should limit their lawmaking in that realm to specific and limited provisions covering foreseeable problems, such as liability for damages caused by space vehicles and the return of astronauts gone astray on earth.

Why what appeared to be a stalemate was broken is still one of the mysteries of U.S.-Soviet relations. But the diplomatic chronology of positive progress toward an agreement seems to have begun in July with the submission of a draft proposal by the Americans to the Russians. The Soviet reply came on 9 September in the midst of the burst of bonhomie at the U.N. which followed the signing of the partial test ban treaty. Negotiations continued quietly after that, and a few weeks ago reports were current that the two countries had agreed on the essentials of a draft declaration on the peaceful uses of space.

No Claims in Space

Such a draft was in fact submitted jointly by the U.S. and the U.S.S.R. and is being speeded through U.N. channels to what seems assured approval as a General Assembly declaration, which is much like a resolution but, apparently, more so.

The draft text repeats the original Assembly space resolution's point that outer space should be explored and used in the peaceful interests of all mankind and, specifically, that no nation shall lay claim to outer space or celestial bodies by occupation or any other means.

Later sections of the draft reveal that both the Soviet Union and the United States have moved from former fixed positions which had prevented agreement on legal principles.

Perhaps the most significant product of the give and take is the absence of any reference to intelligence satellites. From the time serious discussion on legal principles began between the two countries, the Soviets had insisted on a prohibition on "spy" satellites. A Soviet concession on this point not only cleared the way for progress on the legal principles but, obviously, has import for future talks on arms control.

A reference in the text to the condemnation of any propaganda "designed or likely to provoke or encourage any threat to the peace, breach of the peace or act of aggression" indicates that the United States has accepted a ban on the use of satellites for transmission of war propaganda. The United States had balked at such a ban mainly because the question of what constitutes war propaganda may be highly disputable. It should be noted that the language in this section is far from specific.

The Soviets in past space committee meetings decried American nuclear tests in space, though they themselves conducted such tests in their last big test series, and also objected strenuously to Project West Ford, which involved the injection into orbit of a band of copper needles as part of a space communications experiment.

Progress on Fundamentals

In the draft, the problem is dealt with in these very general terms. "If a state has reason to believe that an outer space activity or experiment planned by it or its nationals would cause potentially harmful interference with the activities of other states in the peaceful exploration and use of outer space, it shall undertake appropriate international consultations before proceeding with any activity or experiment." Also, any state which believes that activities by another state would cause difficulties may request consultations.

It should be clearly noted that a U.N. General Assembly resolution or declaration stands lower on the diplomatic scale than a treaty. Treaties are viewed as both much more detailed and more binding on the signing nations. It is expected that the declaration will lead to treaty negotiations dealing with separate sections of the declaration. Informed observers say that the sections likeliest to be taken up first are those on rescue and return of astronauts; on return of objects launched into outer space; and on liability for damages done on earth, in air space, or in outer space by objects launched into outer space. These are subjects which the United States has regarded as priority items.

While there appears to be a rough consensus on these sections within the space committee, it is possible that difficulties may develop over definitions and details when the negotiators get down to cases. There may be, therefore, some slips between the cup and the lip.

An agreement with narrower implications, but which is likely to have more specific immediate effects, is the one reached in Geneva last month on the allocation of radio frequencies for activities in outer space.

This agreement was concluded at a 5-week space radiocommunications conference convened by the International Telecommunication Union (ITU) and attended by delegates from 70 member nations. While the agreement must, in effect, be ratified by the member countries, observers expect no serious reversals.

The chief accomplishment of the conference was the allocation of frequencies totaling 6076.426 megacycles for various kinds of space activities. Under the agreement, frequencies were set aside for the following space services: communications satellites, space research, meteorological and navigational satellites, radio astronomy, space activities of amateurs, and aeronautical space services.

Observers say the new agreement will permit the United States to begin serious efforts to lay the groundwork for an international "joint venture" satellite system for transmission of telephone, television, and telegraph communications. Officials of the American commercial Communications Satellite Corporation have expressed satisfaction with the accord and are pushing ahead with promotion of the idea of an international system. The rise of competing satellite networks in the future would certainly make the private space-communications corporations' financial road much rougher.

U.S. View Prevails

Incidentally, a possible complication to the Communications Satellite Corporation operations apparently was removed in the Soviet-American agreement on legal principles. The Russians dropped their demand that only states conduct activities in space and agreed to a proviso that states shall supervise the activities of, and accept responsi-

bility for, the activities in space of nongovernmental entities.

When the radiocommunications conference at Geneva began, the United States was asking for allocations of 2725 megacycles for communications satellites and the Soviets were proposing some 1600 Mcy/sec. The meeting produced an agreement to allocate 2800 Mcy/sec for communications satellites; American delegates at the conference said this should be sufficient to accommodate anticipated traffic growth until the 1975–1980 period.

The new agreement makes about 15 percent of the radio spectrum available for all space services, as compared with about 1 percent allocated in a 1959 agreement which the new Geneva pact supersedes.

Increased activity in space obviously exerted pressure on the delegates to reach agreement on a revision of the Table of Frequency Allocations, which is the key to the regulations which govern radio operations throughout the world. Without such an agreement, interference from earth-based transmission would have caused chaos in satellite communications.

Ban on Bombs

No such utilitarian rationale seems to underlie the American-Russian meeting of minds which led in October to the adoption in the General Assembly of a resolution calling on all states to "refrain from placing around the earth any objects carrying nuclear weapons of mass destruction, installing such weapons on celestial bodies, or stationing such weapons in any other manner."

While this agreement not to orbit H-bombs is viewed as a corollary of the test ban treaty, there is a question as to whether the agreement marks any significant change, since the declared policy of the United States for some time has been to refrain from arming space unless someone else does, and the Soviet Union tacitly has taken the same line. This and other recent joint gestures by the two countries may fairly be taken as signs of good intentions but so far have made no appreciable difference in their actions.

One old lesson which still applies in relations between the U.S. and the U.S.S.R. is that progress in such matters as exchanges, technical cooperation, and agreement on legal principles in space cannot be taken as necessarily reflecting stable progress in basic political relations.—JOHN WALSH

FDA: Drug Agency Answers Critics by Attempting To Step Up Science, but Many Critical Problems Remain

The trouble with science in the Food and Drug Administration, a subject currently agitating the agency, the drug industry, and several committees of Congress, is that it is somewhat in the position of a penguin in the tropics: it is difficult to get it there in the first place; it requires heavy insulation from an essentially unsuitable environment; competition from more native forms of life is apt to be rough; and when all is said and done, it is not likely to feel altogether comfortable.

The FDA, which was established in 1906, is a component agency of the Department of Health, Education, and Welfare charged with supervising a variety of laws regulating the standards of foods, drugs, cosmetics, and related products shipped in interstate commerce. From the beginning its principal job has been to enforce the law, but as the products within its purview have grown more complex, the agency has come to depend heavily on scientific information to guide and support its decisions. And over the years, between its function as a "cop" and its function as a "scientist," the FDA has developed an acute schizophrenia which makes it the despair of the many critics who feel that the "cop" has gotten the upper hand.

A rundown of some of FDA's actual activities will perhaps illuminate the point. Last March, in its monthly bulletin on enforcement and compliance, the FDA reported seizure of a lobster Newburg heat-and-serve dinner in which scallops were found to have been substituted for lobster. Last December it seized half a million bags of cocoa beans on charges of insect infestation, and last February it cleared for sale canned bacon sterilized by irradiation. The current (November) bulletin reports seizure of canned tomatoes containing excess peel, a novelty toy lacking the precautionary labeling required by law, the seizure of 957 tons of contaminated food, and the initiation of 36 federal court actions on mislabeled or substandard drugs, therapeutic devices, antibiotics, and medicated feeds.

These are worthy tasks, everyone is agreed that someone should be doing them, and the record of FDA for doing them well far outdistances the record of its European counterparts. But the task of distinguishing lobsters from scallops is not in the same class with the sophisticated scientific analysis demanded for clearance of a new drug, and there is considerable feeling that the enforcement officers who dominate the agency have been a bit cavalier in their treatment of science.

In the past few weeks, prodded by congressional criticism that has focused particularly on the agency's handling of new drugs, the FDA has been indulging in one of Washington's increasingly popular pastimes—an activity known as "upgrading science" or "upgrading research." FDA's reorganization plan will inject a fairly small dose of science into its enforcement-centered structure and temper, but it is not likely to silence the critics who have been calling for a complete scientific transfusion, and it leaves the Bureau of Medicine, the division reponsible for new drugs, wholly untouched. The plan's new features are the appointment of a scientist (as yet unnamed) to serve as an associate commissioner and the establishment of a National Advisory Council. The Advisory Council, to which no appointments have been made, will be composed of university, industry, and consumer representatives. It is to be patterned after the advisory committees of the Public Health Service and the National Science Foundation which help distribute research funds, but since FDA sponsors no outside research, its advisors will be in a less strategic spot to exercise real responsibility. What, exactly, it will do has not yet been figured out.

The rest of the reorganization plan, according to the official announcement, simply "adjusts existing functions and deploys the staff so that they will be able to operate more efficiently." The former Bureau of Biological and Physical Sciences will be divided into two bureaus, a Bureau of Scientific Research and a Bureau of Scientific Standards and Evaluation. The former will deal with long-range studies in food and nutrition, the latter with setting standards and tolerances of substances in pesticides, cosmetics, antibiotics, and certain drugs.

Science at Home

"Our research has to be oriented to the basic mission of FDA," Commissioner George P. Larrick commented last April, "and it would be impossible . . . to get scientific results directly and immediately useful to an enforcement agency by relying solely upon