

program other than those related to manned lunar expeditions. And NASA's recent reorganization, in addition to streamlining the chain of command and tightening up an organization that grew topsy in a hurry, reflects the shotgun attitude. The changes place emphasis on four major areas of NASA's 10-year program: manned space flight, including lunar exploration; space sciences, in terms of unmanned scientific investigation of space, the moon, and the planets; practical applications of space technology, including operational weather and communication satellites; and advanced research and technology in both aeronautics and space.

Moon Czar

Webb's insistence that NASA's program must be accepted as more than just a race to the moon is also one of the chief reasons he has steadfastly fought considerable pressures that a "czar" be appointed to head the manned lunar effort. It would not be an understatement to suggest that Webb's biggest headache today is trying to provide NASA immunity against "czaritis."

Even before President Kennedy threw down the moon gauntlet on 25 May scientists and industrialists, both in and out of government, were grouching for a moon manager the likes of Leslie Groves or William F. Raborn or Hyman Rickover. It is little wonder that the press promptly dubbed D. Brainerd Holmes, a Radio Corporation of America executive picked by NASA to head its newly created Office of Manned Space Flight Programs, the "moon boss." It is now apparent, however, that there will be no moon boss for the present, at least. Holmes will report directly to Robert C. Seamans, Jr., NASA's associate administrator. So, too, will the heads of the three other newly created NASA offices established in the recent reorganization (to be effective 1 November). Rather than by a czar, the lunar program, as well as all other NASA activities will still be controlled by a "troika-like" board comprised of Seamans, Webb, and NASA's deputy administrator and scientific spokesman, Hugh L. Dryden.

Nonetheless, pressure will still be brought to bear on Webb, on the little publicized but powerful National Aeronautics and Space Council (headed by Vice-President Lyndon B. Johnson) and on President Kennedy to appoint a czar to oversee the manned

lunar effort if for no better reason than to personify the sprawling, complex inanimateness that characterizes a modern technological endeavor.

In the coming months the nation will again, or still, depending upon one's view, be treated to a plethora of space news. During the first two weeks in October, earthbound space experts will describe every detail of space research to the 12th International Astronautical Congress meeting in Washington (1-7 Oct.) and to the American Rocket Society's "Space-flight report to the nation" (9-15 Oct.) in New York. Hopefully, these meetings will be capped by the test firing of the Saturn booster, the earth-orbit of a chimpanzee, and with effort and luck, the earth-orbit of the first U.S. astronaut before the year's end.

Continuing debate will also center on everything NASA does or does not do. The military can be counted upon to carp that space doings are really its responsibility, as the Soviets demonstrate. And almost every aspect of the civilian space program will invite stereophonic controversy in and out of government: solid boosters versus liquid boosters; big boosters versus rendezvous techniques; instruments versus men.

One cannot quarrel with these intramural squabbles among experts. After all, NASA is spending, or will spend, almost 1 percent of the gross national product over the next several years, and its every success or failure has military, political, psychological, and social import for all men.

But one can question whether the public might not become confused or sated, if it is not already. One wonders, for instance, how many Americans can or even want to distinguish between Ranger and Rover, a Saturn and a Surveyor, a C-1 and an S-1.

There is the danger that the entire space program has been sold on the attractive supposition that the U.S. will beat the U.S.S.R. to the moon. Conceivably, the U.S. could lose this race. What now seems to be called for, and NASA is beginning to realize this, as is reflected in its reorganization, is the need to create a better public understanding of the nation's space needs and aims.—HOWARD SIMONS.

While Howard Margolis is on vacation, his section will be written by guest reporters. Howard Simons, this week's guest, is on the staff of the Washington Post.

Fish Flour: Action by FDA Starts Row over This Promising Answer to World's Need for Protein Foods

Fish flour, an inexpensive, tasteless food supplement with great potential for ending protein deficiencies in newly developing nations, is en route to becoming the subject of a confusing public controversy in Washington.

At issue is a preliminary action by the Food and Drug Administration which has the effect of withholding approval for sale in this country of flour made from whole fish. The final decision hinges on a lengthy review process, possibly including public hearings. FDA estimates the review may take "a minimum of 8 to 10 months." Its decision may well be followed by a court appeal.

Though the wholesomeness of the product is not questioned, FDA said it may have to be regarded as "adulterated" because the flour is "made without the removal of those portions of the fish, including the intestines and the intestinal contents, that are not normally regarded as acceptable for human food in the United States."

Ironically, the developers of fish flour feel there is little potential market for the product in this protein-rich country. Their attention is fixed on the flour's possible uses in Africa, Asia, and Latin America, where marked protein deficiencies afflict massive numbers. FDA approval is not required for shipment abroad, but health authorities in many nations look to FDA for guidance and insist on its stamp of approval before they will allow importation of an American food or drug product.

With foreign concern about FDA approval in mind, the BioVin Corporation, of Monticello, Ill., a domestic producer of fish flour, petitioned FDA for "standard of identity" for its product.

BioVin's petition to the FDA had the tacit support of some Administration officials, who were concerned that Soviet propaganda might find a choice issue in the United States' sending abroad a foodstuff that it would not permit its own people to eat.

Extremely distressed by the FDA treatment of the petition, those interested in the development of fish flour have been enlisting congressional and Administration support to bring pressure on FDA. FDA, in turn, has complained about threats to its integrity. As one newspaper account put it, FDA officials "fear that approval of the flour would undermine their agency's program of keeping foul matter out of food." It

went on to point out that the flour "is made by grinding whole fish, including scales, eyeballs, and intestines," and warned that "the controversy over fish flour could develop into one of the agency's major battles."

Into the burgeoning fray has come George McGovern, director of Food for Peace. He spoke last week in Washington before the International Conference on Fish in Nutrition, sponsored by the Food and Agricultural Organization of the United Nations. When properly purged of impurities by heat and washing, he declared, fish flour "is no more adulterated than pigs' feet, or liver or brains or tripe or tongue, which has been properly prepared."

Also joining the battle was Senator Douglas, who announced he would serve fish-flour preparations to his congressional colleagues to publicize its wholesomeness. While Douglas and a number of Senators relied on simply vocalizing their displeasure over FDA's action, several House members introduced bills to exempt fish flour from FDA's jurisdiction. A White House source said that the President himself was displeased by the FDA position and that FDA would not be permitted to stand in the way of a promising solution to mass dietary deficiency in nations we seek to help. The White House was of the opinion that perhaps too much significance had been attached to the FDA action, and that foreign acceptance could be achieved without FDA approval.

For its part, FDA, which is an independent agency, said it would not be pressured by the Congress or the White House into disregarding its obligations to the American people. It said that, as part of the review process, it had requested public comments and had received the wholehearted approval of a number of organizations, including the General Federation of Women's Clubs. And it said it discerned additional support coming its way, some of it from Capitol Hill.

Source of Protein

Very likely to be obscured in the developing row is the great potential inherent in this unpalatable-sounding substance. Also known as fish protein concentrate, fish flour has been produced off and on in various parts of the world since the late 19th century. In recent years it has taken on special significance because of findings of serious protein deficiencies in many national diets.

Its advantages are said to be numerous: It is cheap and highly concentrated. It is nonperishable, even in hot, humid climates. Because it can be made virtually tasteless, it is compatible with a variety of dietary preferences. In small, but still potent quantities, it is undetectable as a supplement in bread and grain preparations, which are the dietary mainstays in the nations most afflicted by protein deficiencies.

Fish flour's potential as a protein supplement has nowhere been realized on a large scale, though it is produced and used in Sweden and a number of other countries.

Many of the most hopeful workers in the field emphasize that technical and production problems must first be overcome, and that these may prove minor as compared to the difficulties of distribution, marketing, and consumer education.

These uncertainties, however, are not shared by the man whose fish-flour petition brought on the FDA action, Ezra Levin, an aggressive businessman and scientist who is president of the BioVin Corporation. BioVin, employing a process of azeotropic dehydration and extraction of lipids from whole, granulated fish, offers a 70-percent protein concentrate at 15 cents a pound, F.O.B. its Monticello, Ill., plant. BioVin's process is well regarded by workers in the field, and its petition was filed with the "cooperation and approval" of the Bureau of Commercial Fisheries, which has a \$50,000 fish-flour research project under way at College Park, Md.

To add further to the potential for public confusion on the issue, the petition was filed by a Senate staff aide, with the endorsement of several members of Congress, principally from New England fishing states. This unnecessary but by no means unique procedure has been cited by FDA officials as a sign of threats to the agency's integrity and has precipitated fight-to-the-death pronouncements.

FDA officials proudly point out they have been fighting "filth in food" for 50 years, and say they are not going to establish a precedent that will open the way to a lowering of standards. The fish-flour developers, on the other hand, point to FDA's allowable tolerances for rat dung in wheat.

The Administration, of course, has had more important things on its mind, but considering the interest that it has shown in fish flour's potential, it is difficult to avoid the reflection that this row could have been avoided—D.S.G.

Announcements

A formal statement on **civil defense and modern war**, issued this month by the Society for Social Responsibility in Science, calls for "full disclosure . . . of the facts about civil defense, and nuclear and biological war," since ". . . many inevitable effects . . . are largely ignored in public discussion: the fundamental disruption of the structure of society; genetic mutations in all living things, and unpredictable changes in the ecological balance of the world . . ." To avoid these, the society calls for an "unwavering search for alternatives . . .": "Mediation, a stronger United Nations, international law, and other non-violent approaches to conflict situations must be pursued and the world's resources put to constructive use."

The SSRS is defined as "an international group which holds that scientists are morally responsible for the consequences of their work to society, and that scientists should devote themselves to constructive rather than destructive work." (E. J. Lieberman, 24 Claflin Rd., Brookline 46, Mass.)

According to the U.S. Office of Education, of the 13,400 **students working for doctorates** in the academic year 1960-61, more chose the physical sciences than any other branch of science. About 2400 of the candidates chose fields such as chemistry, metallurgy, physics, geophysics, and oceanography. Next in popularity were the fields of education, with approximately 1900 doctoral candidates; social sciences, with 1600; engineering, with 1500; and the biological sciences, with nearly 1400.

Of the approximately 314,000 students enrolled in 1959-60 as candidates for graduate degrees, 9800 received doctorates in that academic year. About two-thirds of those enrolled had completed less than 1 full year of graduate work and another third had completed more than a year.

An exhibition of **Soviet medical services and equipment**, organized by the U.S.S.R. Ministry of Health, has begun a 63-day tour of the United States. The exhibition, now appearing in Oklahoma City, is scheduled to spend a month at the Chicago Museum of Science and Industry, and will conclude its tour at the University of Minnesota. Designed "to acquaint