

alone, when in truth, the foundation of our strength and amazing vitality is not in material things, but rather in the spirit of this nation, in the faith we cherish."

WINDS AND WAVES

TO inquire into the weather conditions bearing on the recent test at Bikini, *The Listener* visited Dr. J. F. Gabites, of the N.Z. Meteorological Service. Dr. Gabites said no information was available about the weather conditions on March 1, but the winds in the test area would be known up to 60,000 feet, and possibly up to 100,000. In the lowest 5000 feet there was a marked predominance of east to north-east winds, but whatever their direction on the day of the explosion their part in distributing ash would probably be mainly local. The winds at higher levels were far more variable, and winds from no particular direction predominated. Calculations as to the direction in which ash would be carried could be upset by the material being thrown higher than expected.

According to Dr. Gabites, the Pacific test area lies in the path of the North Equatorial Current. Any deposit on the sea would be likely to travel west with the current at an average speed of 15 nautical miles per day. The main current turns north as it nears the Philippines and travels along the coast of Japan, but elements of it are thought to turn south at the same point. It was possible, but extremely unlikely, that it eventually touched New Zealand at some points.

"The contrast between water-borne and air-borne dissemination of radio-active debris is a question of time," said D. W. McKenzie, of the Geography Department, Victoria University. "It is possible for the spread of air-borne dust to be very quick if it gets into the high-altitude rapidly-moving westerly air of the jet streams which circulate in both hemispheres at altitudes around 30,000 feet and at speeds up to 400 miles an hour. The Marshall Islands, however, lie across 10 degrees north in a latitude farther south than the movement of the jet stream as so far mapped, and radio-active dust can get into the jet stream only by mixing from turbulence on the margin of equatorial air, which is a slow process. However, knowledge of jet stream movement is far from complete.

for it seems evident that the volcanic dust of the great eruption of Krakatoa in 1883 did reach the jet streams, because it circulated several times around the world. Krakatoa is no further south of the equator than the Marshall Islands are north, and though jet stream movement does differ in each hemisphere meteorologists today would hardly anticipate the way the dust of Krakatoa circulated.

"There seems to be no mechanism by which the radio-active dust from the March 1 explosion could have reached Japan, and most definitely none by which it could reach as far south in this hemisphere as New Zealand.

"The contamination of water and the things that live in it must again be offset against the slow movement of water masses. Under the conditions of natural movement the water in ocean currents, which passes the Marshall Islands from the east at speeds varying from ten to fifteen miles a day, will take a long time to disseminate radio-activity widely. But where a man short-circuits this by taking fish from contaminated water, as did the Japanese fishermen recently, he finds himself in trouble at once. How long radio-active plankton* will maintain its dangerous condition, and pass this on to the chain of life that depends on it, only the physicist and the biologist can tell us. The American proposal to declare an area of over 300,000 square miles dangerous is looking very different from the conditions of the first Bikini explosion, placed as it was on the most remote atoll available. This 300,000 square miles is in an area in which Japanese fishermen regularly work, and the only international law operating seems to be the one which says, 'The larger my fist, the further you must stay away from it.' It is to be hoped the owner of the fist knows enough about its powers to keep it from poking its finger in the world's eye."

Acquired radio-activity has been demonstrated in both fish and plankton, according to L. R. Richardson, Professor

*"Plankton" is the name given to the small drifting organisms which form the basic food of free-swimming animals in the sea, or other waters.

THE POLITICAL FRONT



PERSISTENT efforts have been made by United Nations to reach agreement on the international control of atomic energy. For five years the majority of UN members supported the plan adopted by the U.N. Atomic Energy Commission (now superseded by the Disarmament Commission), based on the Baruch proposals. The Commission had proposed that international control should precede the elimination of atomic weapons from national armaments, and that ownership and operation of atomic energy production facilities should be vested in an international control agency not subject to a veto in the Security Council. This plan was opposed by the Soviet Union, whose basic position was that conventions for the unconditional prohibition of atomic weapons and for the international control of atomic energy should come into force simultaneously, and that the production facilities should remain in national hands, but subject to international inspection by an agency operating within the framework of the Security Council. No agreement could be reached between the two groups.

The Atomic Energy Commission was replaced in 1952 by a Disarmament Commission. Its function was to prepare proposals to be embodied in draft treaties for: (1) the regulation, limitation and balanced reduction of all armed forces and all armaments; (2) the elimination of all major weapons adaptable to mass destruction; and (3) effective international control of atomic energy to ensure the prohibition of atomic weapons and the use of atomic energy for peaceful purposes only.

The Commission's third report was the subject of a debate last November in the General Assembly. The results were described in a recent issue of "External Affairs Review." A draft resolution, sponsored by 14 nations (including New Zealand) reaffirmed the responsibility of United Nations for the tasks under the immediate supervision of the Disarmament Commission. Three of the operative paragraphs in the resolution "called upon all member States and the major Powers in particular to intensify their efforts to assist the Commission in its work; suggested to the Commission the establishment of a sub-committee consisting of the Powers principally involved, which would seek in private an acceptable solution and report to the Commission. . . ; and requested that the Disarmament Commission report to the General Assembly and to the Security Council not later than September 1, 1954." The resolution was adopted by 54 votes in favour (including New Zealand), none against, with 5 abstentions (Soviet bloc).

of Zoology at Victoria College. There had been several cases of fresh water fish being affected by the accidental discharge of waste from atomic plants. Large doses of radiation would, of course, be lethal, he said, but the genetic effects of lesser doses were not known.

From information reported to date, said Professor Richardson, the test explosion had brought with it no disaster for sea life on the scale of the "Red Tide" experienced off the coasts of Texas and Florida in the thirties. The "tide" consisted of a reddish planktonic organism toxic to fish, and was estimated to have destroyed 400,000,000 fish in a short period. "We would surely have heard," he said, "if there had been any destruction on this scale as a result of the bomb."

evidence, and there should be authoritative pronouncements made to cover the possible biological danger to human beings, to animals and to crops.

"In general, however, the air and sea circulations are such as to remove hazard to New Zealand's main islands arising from atomic explosions in such places as Monte Bello and Bikini. The distances that any radio-active material would have to travel are huge, the dilution large, the decay rapid, and the prevailing movements of air and water unfavourable to their movement towards us."

Professor G. C. J. Dalton, Professor of Mechanical Engineering at Auckland University College, who worked at the Harwell Atomic Energy Research Establishment before coming to this country, told *The Listener* that so far as New Zealand is concerned there is no danger at all from contamination by radio-active materials. "Radio-activity can be very readily detected in minute quantities, but the normal person who has had an X-ray examination has been subjected to much more radio activity than we are ever likely to experience here from the experimental explosions," he said. "I believe the tests will do a great deal of good, if they serve to wake up the politicians to the power of this new force. There is certainly nothing in the whole thing yet likely to cause trouble on a world scale, however. A much more serious problem arises from the need to dispose of the continuously produced by-products of atomic energy applied to peacetime purposes. Casualties caused by atomic research so far can be regarded as almost negligible when compared with the deaths and injuries inflicted in more mundane pursuits, such as testing new aircraft, or even when compared with the normal daily risk of being run over on the street."

Perry Hart's Visit Cancelled



PERRY HART

BECAUSE of a motor accident, the Australian violinist Perry Hart has had to cancel her New Zealand visit this month. She had been engaged by the NZBS to give three studio recitals and a concerto with the National Orchestra. In a letter to the Concert Section of the NZBS Miss Hart said that besides other injuries she had suffered a dislocated left thumb, and her doctor considered that she would be unable to play for at least two months.

Appearing in place of Miss Hart at the National Orchestra concert in Auckland on Saturday, April 10, will be the New Zealand pianist Janetta McStay. She will perform Mendelssohn's Concerto No. 1 in G Minor. A graduate of the Royal Academy of Music, Miss McStay has given recitals in the chief towns of the British Isles and has broadcast on all services of the BBC. Doris Veale, who was to have been Miss Hart's accompanist, has replaced the scheduled studio recitals with items for solo pianoforte.

TESTS NECESSARY?

ASKED if scientists consider the continuation of experimental atomic explosions is strictly necessary, Professor P. W. Burbidge, head of the Physics Department at Auckland University College, said: "This is not a matter for scientists in general. As things are, a ballistics war weapon is being tried out, and it is presumably necessary to do so to check details of laboratory calculations and to discover how the weapon may be used. The explosions are of general scientific interest only to the extent of the publication of their results to give evidence of particular phenomena. But, of course, little is published." Speaking of possible risk of contamination, Professor Burbidge said the tests should be carried out where the risk to inhabited regions was the smallest possible. "One thinks naturally of such places as the polar regions. There is not sufficient evidence yet to say there is no risk. We have a right to hear the