SCIENCE NEWS

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THE SUN'S RADIATION AND THE WEATHER

WEATHER changes on earth may be indirectly controlled by changes in the sun's radiation, through variations in the thickness of the radio-wave-reflecting "E" layer of the earth's outer atmosphere. A close correlation between thickness changes in this layer and shifts in the weather has been found by Dr. Charles G. Abbot, research associate of the Smithsonian Institution, in a study of records extending over seven years.

Dr. Abbot has for many years followed the apparent connection between the weather and the solar constant, or total radiant energy received from the sun, as recorded daily at Smithsonian observatories in California, New Mexico and Chile. Changes in the solar constant are small and difficult to make at best—impossible under bad weather conditions. "E" layer thickness variations, on the other hand, are easier to measure and observations are not affected by weather. These thickness variations are also measured daily, by observers of the Carnegie Institution of Washington; the best records are those kept by the Carnegie stations in Huancayo, Peru, and Watheroo, Australia.

"It is clear," according to Dr. Abbot, "that the sun's variations are a major factor in weather. The effects produced are large. In Washington temperatures it makes nearly 20 degrees Fahrenheit of difference in some months whether the solar constant rose or fell by three fourths of one per cent. a week or more previously. The effects are long continuing. They appear to begin three days before measurable changes in radiation occur, and to last at least until fourteen days after, making an important sequence of at least 17 days in weather, attending each change of solar radiation.

"It appears that approximate predictions a week in advance could be made of dates of peaks and troughs of Washington temperature if daily reports of the 'E' layer were obtained from a sufficient number of ionization stations, and if means could be found to anticipate by a few days closely the date of the next approaching solar change. Its sign would always be known to be opposite to that last observed. From present records we should expect solar changes of the same sign to follow each other at intervals of about nine days, with changes of opposite sign intervening. There is, I think, a fair hope that such important dates as heavy frosts may become predictable a week in advance from solar observations by this method."

ITEMS

THE Smyth report on atomic energy, which is the authorized detailed story of the development that led to the atomic bomb, has been reprinted in a 10,000-edition by His Majesty's Stationery Office, the official British government agency corresponding to the U. S. Government Printing Office which prints U. S. official publications. About ten such U. S. documents have been preprinted similarly, including the official radar report. The American Library in London, which is a function of the Department of State, acts as professional adviser to the HMSO in this connection.

RETURN of science in Norway to normal conditions is signalized by arrangements now being made for a geological research expedition into a high mountain area in the central part of the country, to study records left in the rocks and soil by the waning remnants of the last great Ice Age glacier. A communication to this effect has just been received here by the Geological Society of America from Dr. Kaare Munster Strom, president of the Geological Society of Norway. The expedition, which will be in the field from about June 25 to July 5, will be under Dr. Strom's leadership. The size of the party will have to be limited because of lack of shelter in the rugged mountain country, but two or three American geologists may be included.

A SHIPMENT of 800 fingerling carp has been sent by the U. S. Fish and Wildlife Service to stock lakes and streams in the neighborhood of the American air base on Trinidad, off the northern coast of South America. The carp is an exceedingly adaptable and prolific fish, and even a small planting like this has a good chance of becoming established. Introduced from Europe, the carp has never found much favor in this country. It is close to the bottom of the American market in order of preference as a food fish, and sportsmen generally consider it a pest. One virtue is grudgingly conceded to it: carp will survive in waters too polluted for any other species. Yet many peoples elsewhere in the world are very fond of it, and it has a long and honorable table history. Roman patricians used to have private carp ponds at their country villas, so that the fresh-caught fish could be carried directly to the kitchen.

A NEW industrial science research center under construction at Bound Brook, N. J., is another bit of evidence of appreciation by American industrialists of the part science played in winning the war, and the increasingly important part scientists will play in American manufacturing. The building under construction is the first unit of a gigantic center to carry on research work in the field of building materials. It is being erected by the Johns-Manville Corporation. A unique feature of the first building of the group planned, a $2,000,000 structure, is that it will contain central laboratories and ten experimental factories. Projects initiated in the laboratories may thus be carried through their development and pilot-plan production stages under one roof. This is expected to speed up the development of new and improved materials for building and for industrial uses. The completed research center, if constructed according to present plans, will include six buildings on a 93-acre plot, across the Raritan River from the company's plant at Manville. They include two laboratory-factory structures, a research engineering and machine shop building, a water-filtration and waste-processing building and utility buildings.