METEOROLOGY

Must Reclaim Dutch Lands

Flooding of European lowlands means long and costly reclaiming of farm soil by ion exchange process. Catastrophic storm was result of unscheduled rendezvous near Iceland.

➤ HUNDREDS OF acres of Dutch farm lands will have to be reclaimed from the salt waters of the North Sea, an expensive process.

Fundamentally it will be a chemical process whereby the sodium of the sea salt, sodium chloride, will be replaced by calcium. The process is known as ion exchange.

When the dikes broke and the salt water flooded the rich lands, the sodium in the sea salt, by a process of ion exchange, replaced calcium in the land. The salt itself is less likely to invade the earth in toxic quantities, experts said.

Now this process will have to be reversed. The dikes will be repaired as quickly as possible. Then pumping will begin. Many pumps were built after the dikes were broken during World War II. How many of these withstood the storm and the waters, and how many can be repaired quickly is of vital importance in the reclamation job.

Once the salt water is pumped out, fresh water will be pumped through. Gypsum, or calcium sulfate, will be spread over the land. The calcium, through the process of ion exchange, will change places with the sodium and the land will be made fresh and fertile again.

During the process, care will have to be taken that the earth does not puddle, that is, become sticky when it is wet and hard as concrete when it is dry. Straight lime can do this job.

The Dutch learned centuries ago how to make fertile the land reclaimed from the North Sea. But it was only 40 years ago that a Russian soil chemist named Gedroiz found the chemical process involved. Now the Dutch have many soil scientists.

The devastation of so much of the lowlands was caused by the unscheduled rendezvous near Iceland of an extra-tropical cyclonic storm, born north of the Azores, and a high-pressure anticyclonic area, born near Thule Air Base in Greenland.

The meeting of these two storms generated the terrific winds which built up the flood in England and the European lowlands at the end of January.

The low, which was first noticed on the map near the Azores during the week of Jan. 25, was not unusual. It was weak, probably never would amount to much. The high, born over the icy wastes at the top of Greenland, was more unusual and therefore more noticeable. It prevented any storms which are always revolving counterclockwise around lows from moving out into the Atlantic from over North America. The anticyclonic high blocked any movement westward of air across the Atlantic.

Between Friday and Saturday, Jan. 30 and 31, this high moved to Iceland. The low, still weak, approached Iceland from the south on Friday. Abruptly, from Friday to Saturday, stopped by the high, it then turned about and began to move southeastward toward the North Sea.

The relatively weak winds moving from the north around the low on its west side were strengthened by winds moving from the north around the high on its east side. The low moved east of the high and the two streams of north winds came together, becoming terrifically strong. The strong winds pushed the waters of the North Sea. These billions of tons of water struggled to get through the narrow English Channel.

But, just as a funnel overflows if you pour too fast into it, so the water overflowed the coasts of England and the hard-won, below-water-level farm lands of Holland. Thus, out of a rendezvous between a high and a low off Iceland came tragedy for thousands.

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• RADIO

Saturday, Feb. 21, 1953, 3:15-3:30 p.m., EST.

"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Winners of the 12th Annual Science Talent Search for the Westinghouse Science Scholarship will describe their projects, speaking from various parts of the country.

MEDICINE

Men Chief Victims Of Cluster Headache

➤ A NEW kind of headache, called "cluster" headache, was announced by Dr. E. Charles Kunkle of Duke University at the meeting of the American Federation for Clinical Research in New Orleans.

Men are the chief victims.

The headaches come in "clusters" of from one to five a day for weeks or months. The headaches themselves are usually brief, often lasting less than 30 minutes. Nasal congestion on the same side as the headache, reddening of the eyeball and watering of the eye are common accompanying symptoms.

Treatment has been difficult and results inconclusive, Dr. Kunkle said. No cause has been found but enlargement of sensitive arteries either inside the skull or on its surface is suspected as the cause.

"Cluster" headache is allied to migraine, he said, but differs from it in lack of warning signals, rarity of nausea and vomiting and the briefness and closeness of attacks.

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RADIOLOGY

Three-Dimensional X-Rays

➤ THREE-DIMENSIONAL X-RAY motion pictures, marking a new milestone in medical diagnosis and research, have been achieved by radiologists at the University of Rochester, N. Y., Medical School.

The new process, announced as the first such, gives a much better picture of actual conditions inside the body and of the relative positions of internal organs. It requires no modification of the existing cinefluorographic camera. The film produced can be used for conventional, as well as stereoscopic, motion picture projection.

The pictures are expected to be of special value in the study and diagnosis of congenital heart disease, in which the heart is sometimes transposed from its normal position or where there is abnormal overlapping of heart chambers or vessels, as well as in joint and chest diseases. The process is now ready for clinical trials.

The special apparatus was developed by Sydney A. Weinberg of the University of Rochester Medical Center, assisted by Dr. Raymond Gramiak. The project was supported in part by U. S. Public Health Service funds under the direction of Drs. George H. Ramsey and J. S. Watson.

One camera, either a 35 mm. or 70 mm., is used to photograph the subject. The stereoscopic effect is obtained by a moving X-ray tube synchronized to move in an arc maintaining the position of the X-ray beam on the subject. The moving X-ray tube, and the synchronized rotation of the subject on a revolving chair operated by an electric mechanism, give the necessary image shift to create the binocular effect necessary for stereoscopic visualization of the image.

Two prints of the film are made, and are run through two standard motion picture projectors that are mechanically linked to run synchronously. The images are projected through polaroid filters on to a metallic-surfaced screen, and viewed through polaroid glasses.

The new process augments the conventional one-plane X-ray motion picture apparatus developed at the University of Rochester several years ago.

Another important study now being carried on at the Rochester Medical School with the aid of cinefluorography is on the mechanism of swallowing, a subject on which there is considerable medical disagreement.

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