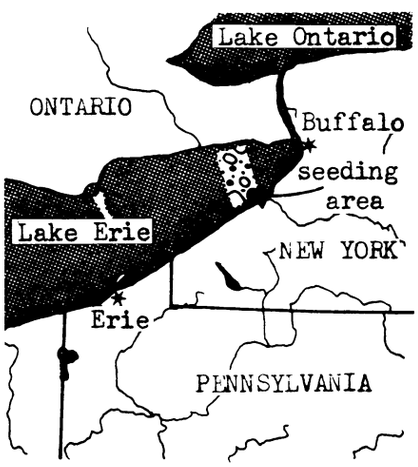
Spreading out Buffalo's burden of snow

Every winter, the Buffalo metropolitan area is burdened with as much as 100 inches of snow. A single snowstorm may dump three feet on the area in a single day, with paralyzing and costly effect.

These extreme snowfalls are the result of meteorological conditions prevailing along the eastern and southern shores of Lake Erie. Snowstorms form when cold air flows over the relatively warmer surface of the unfrozen lake, picking up heat and moisture from the water.

This year the National Oceanic and Atmospheric Administration is testing the feasibility of modifying these heavy storms by seeding. The active phase began last week. Between Nov. 12 and Dec. 15, scientists will attempt to seed four or five storms over Lake Erie in such a way that, though the total amount of snow would be unchanged, it would be distributed over a larger area. The result would be that less snow would drop on the metropolitan area and the rest would be spread over less-populated areas farther inland.

The NOAA scientists, headed by Helmut K. Weickmann, director of NOAA's Atmospheric Physics and Chemistry Laboratory, hope to seed two types of storms. In one situation, the tops of the snowclouds moving over the lake are cold enough—about minus 10 degrees C.—to begin precipitating naturally. These cold clouds contain relatively few nuclei around which supercooled water droplets can aggregate, with the result that large flakes or chunks of snow form. The large, heavy flakes fall rapidly, and a lot of snow lands on a relatively small shoreline area. Project scientists have found that by dropping much more silver iodide than needed to produce snow into an already-snowing cloud, the size of flakes is reduced.



E. Cherry Doyle

Seeded snow could blow inland.

The large numbers of silver iodide crystals provide sufficient nuclei to form very small flakes, which would be blown farther inland by prevailing offshore winds.

In another situation, cloud tops are too warm (about minus 3 degrees C.) to precipitate while over the lake. But once the clouds blow over the land, the slightly higher elevations push them upward just enough to cool cloud tops and produce snow. These storms would be seeded farther out over the lake, so their snow content would be emptied into the lake before they reach land.

The effectiveness of these techniques has been established in limited experiments on storms in less-populated shore areas. The present phase of the study will determine quantitative effects of seeding through a network of snow gauges and observations by mobile survey crews.

Earlier this month, NOAA representatives conducted detailed briefings for public officials and interested private groups from the affected region. These included officials of Erie County, Buffalo, Niagara Falls, Lackawanna and Hamburg; the New York Joint Legislative Committee on Environmental Conservation; the New York State Thruway Authority; airport managers; Buffalo police and fire departments; ski resort operators, and private conservation groups. They explained the goals and methods of the project in an attempt to set the groups to anticipating the economic and social effects if snow redistribution proved feasible and was conducted on a regular basis. NOAA's role, says a spokesman, is to find out if such modification is feasible. Thereafter, it would be up to local officials to decide if modification attempts should be instituted. In the course of the briefings is was found, for example, that airport officials, whose main problem is removal of accumulated snow, were in favor of the project; officials of the Thruway Authority, whose main problem is the type of light, wind-blown snow that would be produced by seeding, were opposed.

As a next step in the project, NOAA hopes to schedule planning sessions with the same people to work out Federal, local and private cooperation on the project and to encourage local people to participate.

J. E. Haas, a University of Colorado sociologist, as part of a larger study, is trying to locate in 20 areas of the country organized interest groups that might be involved if weather modification efforts were undertaken in their vicinity. He believes that a little public information effort by officials conducting experiments may prevent much of the controversy and misunderstanding that have surrounded such efforts in the past. □

Nixon makes it official: Stever in for McElroy

NSF

Stever: Nominated as NSF director.

President Nixon confirmed earlier speculations this week by nominating H. Guyford Stever to become the next director of the National Science Foundation. Stever will succeed William D. McElroy, who announced his intention in July to depart the Washington scene for the chancellorship of the University of California at San Diego when the fiscal 1973 budget is completed next Feb. 1 (SN: 7/24/71, p. 54).

Stever, president of Carnegie-Mellon University in Pittsburgh, is well known in Washington science policy circles, having served on the usual potpourri of task forces, boards, advisory committees and the like. In contrast to McElroy, his professional background has been not in basic science but in aeronautical engineering and space technology. He achieved prominence in those fields during more than 20 years on the faculty of the Massachusetts Institute of Technology until 1965, when he moved to Carnegie. But his strong academic ties fit well with NSF's traditional responsibilities for support of university science.

Stever's nomination was greeted by accolades from the NSF hierarchy. McElroy said he was delighted with the selection, and H. E. Carter, chairman of the National Science Board, NSF's policy-making group, noted with pleasure that for the first time one of the board's members had been chosen as NSF director. Not noted in the distributed White House announcement was another fact that hardly lessened the nominee's attractiveness to the Administration: Stever is a Republican. □