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COMICS AND FEATURES

LAND MADE VALUELESS BY WIND EROSION

By WILLIAM UTLEY

THIS buffalo grass should never be plowed. The land will just dry up and the wind will blow it away, and you with it.

That's what the cattlemen of southern Colorado told the homesteaders 50 years ago. The homesteaders plowed the buffalo grass. Today the wind has blown away the land and many have been forced to move.

Had the farmers of the Great Plains of Kansas, Nebraska, Oklahoma, Texas, Arkansas and Nebraska cultivated their lands with a little more foresight in the years gone by, they would not today, perhaps, have been forced to watch the great red and yellow plague of soil erosion blow their farms from the face of the earth—or more literally, blow the face of the earth from their farms, which is the same thing.

During the World war wheat prices soared sky high. Short-grass prairies were the only virgin soil which remained for wheat production, and to these plains rushed thousands of farmers with their plows. The harvest was rich indeed, with several seasons of good rainfall. Then came years of drought. With them was the return to something like normal—and less—in wheat prices. What land was not abandoned was farmed only in a haphazard manner.

Wheat acreage was further decreased 15 per cent by the administration's wheat allotment program. Production ceased on much of this land; the remainder got very little attention.

Probably this was the land where the recent dust storms first began to get "body." With this power of aggravation it was an easy matter for the dust-laden winds to collect more and more of their devastating burden from the land in western Kansas which is handled by non-resident farmers who "hog-in" their crop by the "cut-and-cover" method of farming which covers large territories quickly, but so poorly that the topsoil blows easily, and when it starts to blow, no one is there to stop it.

Dust Travels Far.

From this start the storms which, during March, raged at terrific heights for from four to twelve days, spread through neighboring states. Huge cloud-palls of white, yellow and red-black dust reached as far as Denver, St. Louis, Cleveland and even Washington in a weird reversal of the "back-to-the-soil" movement that struck the more unfortunate element of metropolitan populations a little while back.

In the stricken Great Plains area highway traffic was stopped to prevent accident. Schools and business houses shut their doors. Health officers warned everyone to stay at home, if possible. Railway traffic was stilled. Several children and adults died of "dust pneumonia." Live stock refused to eat grass and hay even when they could find it under the drifts of eroded soil that were so high in many places that one could walk up a drift to the roof of a tall barn. Even in the cities it was necessary to sleep and often work with wet cloths tied over nose and mouth.

In Chicago and central Illinois the dust united with showers of

rain and the weather man said to the inhabitants, "Here's mud in your eye!" They soon found out he meant it only too literally.

The great storm of May 11, 1934, which stretched from Montana to the Atlantic and hung a 10,000-ton cover of dust over the National Capital was something of a calamity. The storm of March, 1935, was a major catastrophe. Fertile areas, once garden spots, became, as the dust clouds gained momentum, like barren deserts. Good farmers as well as bad were driven from their land and their homes, knowing not whither to turn. Now the government is beginning to wake to a full realization of the seriousness of the problem of erosion.

Fifty-million acres of crop-producing land have been destroyed in the United States by wind and water soil-erosion. Another 120,000,000 acres have lost the topsoil, and 100,000,000 additional acres are approaching this condition, according to the Department of Ag-

riculture, the bureau of chemistry and soils, and the bureau of agricultural engineering.

One million dollars was the amount agreed upon for Doctor Tugwell's crews to begin work, after a visit to Washington of Gov. Alfred M. Landon of Kansas to plead for funds for the project. The FERA expressed willingness for its workers to be turned over to the job. The work will be extended over the states badly affected.

Weapons of War.

Chief weapons in the war against wind erosion will be "listing" and plowing methods which have worked out satisfactorily in the Texas Panhandle demonstration center of the soil erosion service. Farmers and the states themselves will furnish the fleet of 20,000 tractors necessary for the job. "Listing" consists of plowing deep furrows across fields at right angles to prevailing winds in affected areas; this tends to break the force of the wind and cause it to drop dust that it

Projects are also under way in nearly every part of the country to defeat "gully" erosion—that caused by the washing of storm waters—which has destroyed 35,000,000 acres of good farm land. An interesting step in this direction was a law passed in Wisconsin in late March, which exempts fenced, wooded slopes from taxation.

One Hundred-Mile Barrier.

Wind removed the topsoil of the Great plains—and air, coupled with sunshine, will replace it. If the right vegetation is planted, according to the New York state college of forestry at Syracuse university, but it is a process that will take many decades to finish. Prof. S. O. Heiberg says that 10 per cent of the topsoil is decayed plant matter. The other 90 per cent is actual air and sunshine converted into loam—carbon extracted from the air by plants in breathing carbon dioxide into sugars and starches, which remain there.

Joining the combat against wind erosion, the forest service will set up a \$15,000,000 shelter-belt of trees, to stretch from North Dakota to the Texas Panhandle. This

snow peaks of New Zealand, 1,500 miles away. In the spring of the same year, some 15,000,000,000 tons of earth from the Ukraine were scattered over Europe; in the Ukraine a reforestation program similar to that planned by our forest service was used to combat wind erosion.

The Sahara is the source of supply for most of the European dust storms. Hot sirocco winds carry the dust over the Mediterranean and northward as far as the Baltic.

China is famed for dust storms. In winter they sweep over the North China plain, covering trees, houses, crops and people with yellow sediment. Dust storms of another age built the Loess highlands that lie between the North China plain and the deserts of central Asia. This fertile, yellow earth, often reaching a depth of 300 feet, covers thousands of square miles in the northern provinces. Crops may be raised on loess without fertilizing; wind renews the soil as the Nile does in Egypt. The fine, yellow silt has a tendency to split in a vertical direction, furrowing the region with steep cliffs and canyons. The natives often carve cave dwellings in these cliffs, climbing to the roofs of their homes to plow their fields.

To look at them coldly, such dust storms as we have had may be blessings in disguise, according to J. C. Mehler, secretary of the Kansas board of agriculture. They will be, says he, if they lead farmers to adopt diversified farming, turning much of the land back to grazing. They will also prove beneficial in inaugurating tillage methods which will cut down the loss from soil blowing.

Dust storms in northeastern Colorado have been hailed with delight by archeologists. They have taken several inches of dirt off buried Indian treasures, revealing new stores of spearheads, scrapers, stone knives, hand grinding stones and bowls, and fragments of Indian pottery. The latest storms, combined with the erosion of other winds in the last year, have caused the citizens of Cornish, a village 20 miles northeast of Greeley, to hold a second Stone age fair. Since the first fair last year new discoveries of Folsom and Yuma arrow point fragments have been uncovered. The Folsom work is said by experts in archeology to be 20,000 years old. The fair last year was a tremendous success and attracted scores of exhibitors.

Relief from the terrible droughts which have helped to make powder of the soil in recent seasons is promised by John B. Kincer, head of the climate and crop weather service of the United States weather bureau. Kincer, who does not believe in definite changes in climate, but rather in definite cycles of rainfall variations, holds to the view that the United States has been in the descending curve of a "moisture cycle" for the last 25 years.

An illuminating sidelight on city folks' appreciation of the rigors of the dust storms was revealed to the writer while dining recently in a metropolitan restaurant. I complained to my waitress that the spinach was gritty.

"Thank the saints yez are eatin' it here," she replied in her best Hibernian brogue. "Phwat if yez were eatin' it out in Kansas!"

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Top, Ranch in Colorado Piled High With Dust. Below, Left, Dr. Rexford Tugwell, in Charge of Erosion Control. Right, City Folks Also Have Their Battle With Dust.

riculture. A total of 75 per cent of all the farm land used for cultivated crops is subject to erosion and damage, which the department estimates at \$40,000,000 a year.

Causes Heavy Loss.

The 3,000,000,000 tons of soil lost every year through erosion would fill a train of freight cars that would encircle the world 37 times at the equator, says R. E. Uhland, of the United States soil erosion service. He pointed out that figures of loss do not take into account the damage done to highways, railways, reservoirs, streams, ditches and harbors. He said that northern Missouri's 50 per cent loss of fertile top surface soil represents more than 50 per cent fertility wastage because in the top four or five inches of the original soil was concentrated a very large part of the readily available plant nutrients. He declared that the soil is lost as surely as if it were burned in a fire.

"Unless immediate steps are taken and this rapid destruction is stopped by 1950," said Mr. Uhland, "Missouri will have to produce the major portion of her crops on one-fifth of the land now on crops." The Missouri condition is, of course, typical of the whole stricken area.

The work of erosion control, before the latest tragedy, was spread among the Department of Agriculture, the Department of the Interior and the Civilian Conservation corps. To meet the present crisis all erosion control has been placed under the Department of Agriculture with Rexford Guy Tugwell, undersecretary, supervising the work. He will unify the efforts of the Interior department soil-erosion control, the AAA, the for-

est service, the bureau of chemistry and soils, and the bureau of agricultural engineering.

is carrying. This is Governor Landon's favored method. Nebraska urges its farmers to plant soil-rotating crops and grasses. Texas would plant sorghum, which retains soil and moisture. It is advisable to use machines which do not pulverize the soil, but develop a cloddy and roughened surface. The soil should be cultivated at the proper time to conserve what moisture it contains. Machinery used should be of the kind that will incorporate stubble and other plant residues in the surface soil. The Fort Hays (Kan.) agricultural experiment station advises the replanting of all eroded land which was once grazing country with buffalo grass, and has perfected a method for the replanting.

In an attempt to learn the true origin of dust storms and try to put an end to them, the federal government has begun a soil erosion project at Huron, S. D. In addition, there are 180,000 acres of land in South Dakota where the soil-erosion service will try to build a barrier to wind erosion and build up the soil by terracing, strip cropping, counter-cultivation and moisture cultivation.

forest barrier, 100 miles wide and more than 1,500 miles long, following roughly the line of 18 inches rainfall, is intended to restore the water level, improve living conditions within the belt, act as a snow-fence and hold wind-blown dust.

During the next ten years the forest service will plant 3,500,000,000 trees in hundreds of narrow strips, each a hundred feet wide and a mile apart. Only the trees suitable to the climate will be chosen, and there will be gaps in the ranks, where the soil is too poor to justify planting.

The recent dust storms and the terrible havoc in their wake are by no means peculiar to America, says the National Geographic society. The same thing has happened in Syria, Palestine and North Africa. Experts say that such regions, where the rainfall is less than 25 inches a year, should be left to live stock and not cultivated.

Darwin reported that in South America, during the seasons of 1827-1830, so much dust was blown about that boundaries were obscured and property rights confused. In October, 1928, chocolate dust from Australia stained the