

"Agriculture needs not less science in its production, but more science in its economic life. We may usefully distinguish between productivity and production. Real efficiency increases the former but not necessarily the latter. Farmers can not have too much productivity or production power, provided they keep it under control. High productivity means low unit costs. With

efficient economic as well as efficient technical practice, farmers can make productivity their servant. It is half-science that turns research into a Frankenstein, and leads to demands for a halt in technical progress. Full science, embracing the distribution as well as the production of wealth, reconciles the conflict."

Science News Letter, August 25, 1934

FORESTRY

Forest Fire Toll Mounts, Influenced by Drought

HIGH on the list of national woes that have arisen from the drought, 6,973 desolate, fire-blackened areas record this year's destruction from forest fires.

This number, just totalled by the U. S. Forest Service, shows an increase of 2,727 individual fires over an average taken for the same period during the last three years.

The area burned is estimated at 183,000 acres, equal to nearly one third of the area of the State of Rhode Island.

Of the total number of fires 3,727, or 53 per cent., were said to be "man-caused." Some were incendiary, but officials of the Forest Service do not know just how many. The rest were the result of carelessness, springing up from burning cigarettes, neglected camp fires, or other such causes.

"Class C" fires, those that burned an area of more than ten acres each, numbered 1,326. Several of these invaded the United States from over the Canadian border, one crossing over the frontier into the Coleville Forest over a three-mile front.

Lookouts Efficient

The "extra-period fires," those that lasted through noon of the day following that on which they were reported, totalled 183. This relatively small number emphasizes the efficiency of the lookouts who scan vast tracts of territory from lonely mountain tops, locating immediately and accurately the first trace of smoke in the unpopulated timberland far below.

Cross-bearings telephoned to other stations are necessary in determining the exact position of a tiny blaze which may soon develop into a roaring inferno. It is then a question of how soon men

can arrive on the scene to check the wall of flame. Armies of more than 2,000 volunteers have a number of times had to battle for days before the last spark was out.

The number of fires increases each day, especially in Washington and Oregon with their huge areas of unpeopled forest. New fires are springing up continually, many of them raging uncontrolled for several days.

Science News Letter, August 25, 1934



NEW FOREST FIRE HAZARD RECORDER

A forest fuel hygrograph, indicating and recording the main factors of forest hazard, has been developed at the U. S. Forest Products Laboratory, Madison, Wis., and has been tested in service at the Northern Rocky Mountain Forest and Range Experiment Station, Missoula, Mont. The instrument records the degree of dryness of forest leaf litter or duff and of the slash or branch-wood that is left after logging, as well as average wind velocities. Since its indications continuously translate atmospheric conditions into a direct gauge of the inflammability of forest materials, this hygrograph is welcomed by forestry officials.

ECONOMIC ZOOLOGY

International War Urged Against Animal Parasites

MEN OF ALL nations should take international action to fight against their nationless foes, the parasites of animals that supply us with milk, meat and clothing. Such a militant league of science was urged upon the Twelfth International Veterinary Congress by Dr. Maurice C. Hall of the U. S. Department of Agriculture.

"The spread of parasites in international trade calls for international action, as Skrjabin has pointed out," said Dr. Hall. "Such international action calls for international cooperation to prevent undue damage to international trade. . . ."

"Unfavorable conditions confronting our program of parasite control include excessive nationalism, the existence of many local governmental units, gaps in our knowledge due to insufficient research, and widespread failure to use control measures already established as of value. The magnitude of our control problems is not yet adequately esti-

mated or appreciated.

"Favorable conditions for our program include increasing research and interest in parasitology, a rise in the general cultural level, a betterment of the basic economic status of the world, and the existence of large veterinary and zoological groups interested in parasitology and the control of parasites.

"When visualized and dramatized as a form of warfare, the subject of parasite control becomes much clearer as regards its magnitude and the methodology which we must develop."

Science News Letter, August 25, 1934

MEDICINE

Liver Extract Conquers Sprue, Tropical Chronic Ill

LIVER, already the salvation of those suffering from pernicious anemia, promises to conquer a troublesome and chronic ill of the tropics, called sprue. Drs. C. P. Rhoads and D. K. Miller of New York City have produced clinical cures of four cases of sprue which did not respond to the treatment that previously was considered standard. They injected liver extract into the veins or into the muscles.

Sprue is a chronic disease marked by sore mouth, with a raw-looking tongue and gastro-intestinal effects. It occurs mostly in hot countries and causes emaciation, anemia and frequently death. The liver is known to diminish in size. The four cases benefited by liver extract were developed in Puerto Rico or China.

In their report to the American Medical Association, Drs. Rhoads and Miller explain that sprue requires more intensive treatment with liver extract than does pernicious anemia. Thanks to the researches of Drs. G. R. Minot and W. P. Murphy of Boston in 1925, it was found that liver is specifically effective in the cure of pernicious anemia. Liver was first used in 1927 to treat sprue by Drs. A. L. Bloomfield and H. A. Wyckoff in California. Other work by Dr. W. B. Castle and his associates of Harvard Medical School revealed the relationship of diet, vitamin B, gastric secretion and absorption within the body.

The contribution by Drs. Rhoads and Miller is the demonstration that relatively large amounts of liver extract must be injected into the muscles or into the veins so that this material, which is lacking in the patient's body, may be immediately available.

Science News Letter, August 25, 1934

GEOLOGY

Niagara's Rock Slide Only Minor Incident

Great Waterfall Has Known Thousands of Them; Wearing of Falls Price of Having Them at All

NIAGARA created another nationwide sensation by staging a bit of rock-slide on Monday, Aug. 13. Doubtless it will arouse all over again the discussion of various projects for "saving" the falls from the fate their natural erosion may bring them, as it did the last time there was a good-sized rock fall, on Jan. 17, 1931. But it's all a very old story to Niagara.

Some time between twenty-five and fifty thousand years ago, when the Ice Age on this continent was just ending and the Great Lakes, as we know them today, were still young, there were five Niagaras instead of only one.

The remains of these great falls have been found by geologists at a point quite remote from their single surviving sister. They thundered for centuries, with no human ear to hear them, in the region where Syracuse now stands. They were left high and dry when the level of the upper great lakes fell, and all the outlet water was concentrated in a single river, the modern Niagara.

When the modern falls first started running they were about seven miles down-river from their present position. They have been backing up ever since, so that the recent rock fall is only a trifling incident in the whole history of the carving of the Niagara gorge.

Niagara's Tools

The existence of Niagara Falls depends on the presence of a sheet of hard limestone overlying a thick bed of less resistant sandstones and shale. The churning water at the bottom of the falls, filled with broken fragments of hard rock, carves away the softer material from under the over-hanging edge whence the waters leap. From time to time pieces of the limestone break off. Usually they are small; the recent slide, and the one that occurred three years ago, were exceptions. Thus the falls keep young by constantly peeling off bits of their face.

The history of the falls has been the same throughout their millenia of life up to the present. There will come a

time, however, when there will be no more Niagara as we know it today, but a tumultuous series of cataracts dashing through tumbled gigantic boulders.

This is because the capstone which forms the river-bed at Niagara dips slightly toward the south. Several miles upstream it disappears under a stratum of softer rock, which is not capable of forming a resistant rimrock for the river to jump from. When the river finally backs up to this place, it will scour down through the soft stuff until it finds the limestone, break this up in great pieces and thereafter flow foaming and spouting through the obstacles it will thus pile up for itself.

But the generation that will see this still waits for a wholly undeterminable future.

Science News Letter, August 25, 1934

BOTANY

Drought-Resistant Grasses For West Sought in Asia

DROUGHT-resistant grass species, to be used in rebuilding the depleted rangelands of the West, are to be sought in central Asia by an expedition from the U. S. Department of Agriculture.

On the edge of the Gobi Desert there are great natural grasslands, which have been pastured for thousands of years by nomad tribes, without any sign of exhaustion. In this region the temperature ranges from 100 degrees Fahrenheit in the summer to 40 degrees below zero in the winter, and severe droughts are frequent. Yet the grasses survive, and the herds of livestock and game thrive on them.

The leader of the expedition will be Prof. Nicholas Roerich, veteran explorer of interior Asia, from Kashmir to the Altai mountains. With him will be his son, George Roerich, an expert in Central Asiatic languages, and two U. S. Department of Agriculture specialists in grasses, H. G. MacMillan and J. L. Stephens.

Science News Letter, August 25, 1934