

1927 Summer Cool in East

The past summer was cooler than usual in the eastern states but hardly enough to justify the predictions of a summerless year, according to Prof. Alfred J. Henry, of the U. S. Weather Bureau. Prof. Henry has just announced the results of a study of abnormal summers. He finds that at New Haven, Conn., and at New Bedford, Mass., where the records extend back for a century, the past summer ranks No. 30 and 32 in coolness. At both of these places, the famous "year without a summer" of 1816 was the coolest, but at New Haven there have been 29 summers since that have been cooler than the past one, while at New Bedford there have been 31. In the western states, however, the summer was unusually warm. At Portland, Oregon, only the summer of 1926 was warmer than that of 1927, according to records which extend back for half a century. At San Francisco, 1927 ranks third as a warm summer, only 1888 and 1925 having been hotter.

In the middle west and east, only the records of Lynchburg, Virginia, Memphis, Tenn., and Cincinnati, Ohio, show 1927 to have had the coldest summer in fifty years. At New York, Philadelphia, Chicago, St. Louis and Indianapolis the last summer was the second coolest, while at Washington it was third coolest.

"In the last fifty-odd years," says Prof. Henry, "four summers of exceptional coolness, 1903, 1907, 1915 and 1927, have occurred. Comparing these summers one finds that there is little to choose from as to which was the most conspicuous as to the depression of temperature. Considering the length of time the low temperature prevailed and the area affected and the minimum temperature recorded, 1915 should be given first place. Each month of that summer, including May and in a less degree September, was abnormally cold.

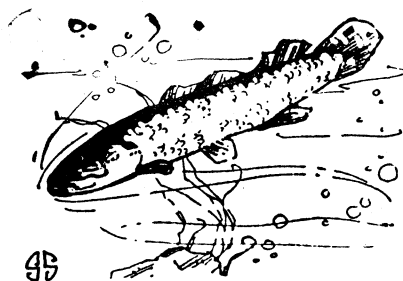
"The greatest depression of the temperature in the summer of 1907 was in June following an exceptionally cool April and May. The cool summer of that year may therefore be considered as a holdover effect from the cold spring immediately preceding.

"The remaining three summers, 1903, 1915 and 1927, have several features in common, the most striking being the fact that each of them was preceded either in May or June by flood-producing rains in the lower

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NATURE RAMBLINGS

By FRANK THONE



Bowfin

Bowfin, dogfish, sawyer, lawyer, brindle, grindle.

All this long litany of names is borne by one innocent, obstinate, rather stupid fish. It is recited frequently by zoologists as a text on the vanity of English or "common" names. Every one of these titles is applied to the fish somewhere or other, but none of them ranges as far as does the fish itself. In Virginia, according to Dr. Jordan, the fish achieves the distinction of a fully-developed Christian name, middle initial, and surname: John A. Grindle, as though he were an authentic F. F. V.

The bowfin is a fish entitled to coat-armor and heraldic quarterings, if antiquity of lineage means anything. For he comes of the very ancient group of fishes known as the ganoids, whose monster ancestors swam the seas of the earth in that remote age known as the Devonian, long before the coal swamps weltered under the Carboniferous sun, and immeasurably long before the dinosaurs wallowed in Cretaceous lakes.

The bowfin has a common heritage with two other ganoid fishes, one in Africa and the other in remote Australia. These are often played up for special attention because their specialized swim-bladders can be used for lungs. But though the bowfin is never formally called a lungfish, it nevertheless has a well developed bladder-lung, and can live for surprising periods out of water. It is said to be the most tenacious of life of all North American fishes.

Dr. Jordan who has been awarded the wreath of Izaak Walton by unanimous consent of American fishermen and ichthyologists, recommends the bowfin highly as a game fish. He bites very readily, and fights like a demon. But the sportsman must be contented with the sport, for the fish is of no earthly use after it is caught.

Science News-Letter, November 26, 1927

Great Glass Disc Cooling

Sometime, about next February, scientists at the Bureau of Standards will know whether or not they have the largest disc of optical glass ever cast in the United States.

During the war, when European sources were closed, the Bureau began to make optical glass. Last May these experiments reached a climax with the casting of a disc of glass 70 inches in diameter and 12½ inches thick. This is the largest disc that has ever been cast in the United States, and one of the largest in the world.

But such a disc is not finished when it is cast. Glass conducts heat very poorly. It is very hot when cast, for then it is in a molten condition. If simply exposed to the air as soon as it begins to harden, the outside would cool much more quickly than the interior. In doing so it would shrink, and the result would be that the disc would soon be merely a pile of small pieces of broken glass. Even if cooled more slowly, strains might be set up in the disc that would cause it to crack as soon as efforts were made to grind it into the dish shape of a reflecting telescope mirror.

Accordingly, it is necessary to extend the cooling over a period of many months. In making such a big disc, it is carefully enclosed in sand and fire clay so that it takes nearly a year to cool. This is called annealing. By February, 1928, the 70-inch disc at the Bureau will have cooled sufficiently for the scientists to uncover it. Then they will know whether they have a disc or some pieces of broken glass.

Annealing is not always successful. The largest disc that has ever been cast, from which the 100-inch mirror of the big reflecting telescope at the Mt. Wilson Observatory was made, was completed only after a number of attempts. This was made at St. Gobain, France, where, before the war, the principal factory for large discs was located. Time after time discs were cast, only to find months later that they had cracked in annealing. Even the one finally used was not perfect, as it was cast in three layers, and when completed showed two layers of bubbles, like the filling in a layer cake. So it may be that the American optical glass workers will find in a few months that they have to try again.

Even if the disc comes out of the

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