

14,500 miles, and for Phobos 5,800 miles. The semi-diameter of the planet being 2,100 miles, the horizontal parallaxes of these satellites are very large, amounting to 21° for Phobos. The nearness of this satellite to the surface of the planet will produce apparent eccentricities in its motion, and cause it to appear as a variable star.

The size of the satellites is not well known, and perhaps the only thing we can say in this respect is the indefinite statement that they are very small. A photometric determination of their size was made by Professor Pickering, Director of the Harvard College Observatory. Professor Pickering's observations are not yet published, but I understand that his result is that the diameter of Deimos is 6 miles, and that of Phobos 7 miles. Mr. Wentworth Erck of Ireland also made a photometric determination of the diameter of Deimos, and found this diameter to be 14 miles. Mr. Erck's account of his determination is published in the *Astronomical Register* for January, 1878. Such determinations are, I think, subject to a considerable degree of uncertainty; but Mr. Erck's method gives us the means of estimating with tolerable accuracy the apparent telescopic brightness of these satellites. My own estimates of magnitudes having become uncertain by using the 26-inch refractor, Professor Eastman and his assistants, Messrs. Frisby, Skinner, and Paul, have made estimates of the magnitude of the star compared with the outer satellite on August 17, using for this purpose the 9½-inch equatorial; and from these estimates I infer that Deimos at the opposition, and at its elongation was of the 12th magnitude of Argelander's scale.

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#### MARINE BIOLOGY

### Oysters Will Be Planted And "Reaped" Annually

**T**HE SOW-AND-REAP method so common to agriculture is on trial in the oyster industry. An enterprising company operating at Padilla Bay on Puget Sound will plant seed oysters from Japan about the first of each year and harvest them the following fall.

Fifty million oysters are now growing in the Padilla beds and will be ready for cocktails before long. Care will be taken not to let the oysters reach the gigantic, "beefsteak" size they would if allowed to attain their full growth.

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#### BOTANY-MEDICINE

## Ragweed Cause of Hay Fever Suffering in Late Summer

**L**ATE summer, bringing the main hay fever season, is upon us. The air is filled with the invisible plague of floating pollen, tormenting sensitive noses and starting thunderstorms of sneezes and torrents of irrepressible tears.

Why should hay fever rise to such a crescendo just about now, and hold its evil spell upon so many suffering mortals for the next month or so?

The answer is found in one word: Ragweed.

For some reason as yet unknown, more persons are sensitive to the pollen of the two principal species of ragweed, the tall and the low, than to any of the many other pollens that can and do cause hay fever suffering in others.

Between the two evil weeds it is hard to choose the worse. But perhaps the tall ragweed, because of its lustier growth and its distribution, at least as widespread as that of its low cousin, loads the air with more pollen and is therefore the more accursed.

The tall ragweed would be not such an ill plant to see, if one did not know its despicable character. To be sure, it has no gaudy bloom, like that impudent

vegetable tramp the jimsonweed; but at any rate it is tall and straight, reaching heights of from six to sixteen feet, and it masses into dense, jungly growths on rich lands left fallow, particularly on often-flooded river-bottoms. The fact that it is an annual, sprouting anew each year from last year's abundant seed, makes it particularly well adapted for the quick conquest of such places.

When the tall ragweed begins to shed its pollen, the low ragweed picks about the same time to add its quota of sneeze-provoking dust.

The low ragweed is a lesser plant than the tall, though not much if at all a lesser evil. It seldom lifts its tough, scrawny stems more than three or four feet high, and in much-tramped pastures, which it seems to delight in, it may not be taller than a foot or two. But what it lacks in height it makes up in distribution. Less particular about soil and moisture than its brother pest, the low ragweed grows in thin, dry upland soils as well as in rich bottom lands and between rows in well-watered cornfields.

A bright and lovely wild flower, that has the ill luck to come into bloom con-



**GOLDENROD**

*It starts psychological sneezes, and is unjustly accused of being a real cause of the ailment*



**TALL RAGWEED**

*The ragweeds, both tall and low varieties, give more people hay fever than any other plant.*

spicuously when the unnoticed flowers of the ragweed are starting their annual warfare against helpless human nostrils, has had to take the blame for crimes it never committed and could not possibly commit. The goldenrod has been long and unjustly accused, and even the repeated vindications given it by physicians and botanists have not served to clear its good name in the public mind.

It is not to the point that some hay-fever sufferers aver, "But I start sneezing if I only so much as see a bunch of goldenrod." That is just it. Most cases of that sort are started by just seeing the suspected plant: the sneezes are psychological sneezes. The patient got started by ragweed or some other real troublemaker, mentally associated goldenrod with his trouble, and now he can get a grand sneezing spell just by looking at it and feeling sorry for his poor nose.

This is not saying that goldenrod does not produce pollen. It makes lots of pollen. But goldenrod pollen is the heavy grained, sticky variety of pollen produced by plants that depend primarily on insects to carry it about.

The bright color of the masses of goldenrod bloom is a further alibi; the yellow lure hung out for insects is itself evidence that the plant does not depend on broadcast sowing on the wind to get its fertilizing dust transferred.

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#### ENGINEERING

### Novel Timber Bridge Replaces Sunken Road

**T**IMBERS placed atop untreated pine piles saved the day along a two and a half mile stretch of swampy North Carolina land where the concrete road had sunk so far as to be impassable. The novel timber bridging was constructed directly over the old roadway, according to a report in the *Engineering News-Record* by W. L. Craven, bridge engineer of the North Carolina State Highway Commission.

Spaced ten feet apart, the piles were driven deep into the oozy mud in lines on both sides of the old road bed. Caps made of concrete encased the tops of the piles in order to provide a firm basis for the timber decking. A layer of asphaltic concrete covered this decking of the emergency road. While the piles were being driven it was still possible to leave a minimum of 13 feet of the old road open to traffic.

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#### MOSOHIPPUS COMES TO LIFE

*Thirty million years ago three-toed horses roamed the Dakota Badlands. They were not the tall, man-carrying type but were headed in that direction. Charles A. Corwin, artist of the Field Museum of Natural History, painted the background of the above picture while Frederick Blaschke did the actual modeling of the equine group.*

#### ENTOMOLOGY

## Grasshopper Inroads Become Severe Along Old World Front

**W**HILE middle western farmers fight to stem the grasshopper advance, locust campaigns along the Old World front are rapidly gaining momentum. North Africa, Palestine, and other Mediterranean areas have been swept by the devouring insects, and European countries are threatened with an aerial invasion. With the insects swarming up from Guatemala and Nicaragua, locust inroads are being felt as well throughout Central America.

Cousin to the American hopper, but somewhat larger and more voracious, this Old World locust is laying waste to acreage in the millions, and, even before wing development, destroyed the entire corn crop of East Africa. Not only are grain fields and grass lands being stripped, but houses are entered and curtains and table linens attacked.

Natives of the provinces in East Africa have become organized in a union to combat the pest. Uniformity of control methods exists, but even then the struggle is against odds. These Old World locusts breed along mountain sides, high plateaus and other inaccessi-

ble areas, making it impossible to destroy the eggs they hatch. Wheat bran, the basis of the American insecticide, is not available. Spraying, digging ditches are employed to halt the pest, but in general the methods are less effective than those used in this country.

The full force of the locust plague on other continents is just beginning to be felt, according to communications received from abroad by the U. S. Bureau of Entomology in Washington. The delay, in Africa, of the heavy seasonal rains and the absence of the flocks of locust-eating storks have combined to make the pests extremely numerous.

One aspect of the war back in the United States deals with Iowa's resort to strategy. Farmers there plan to strike a death blow to the hoppers which will carry on the battle next spring.

Poison bran mash will be distributed during May and June, 1932, to kill the young grasshoppers as they emerge. This fall the fields will be ploughed carefully in order to crush the hopper eggs which are now being laid in the soil by thousands.

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