

harbor at 1.25 P.M.. Both were on their nests at daylight of the following morning. In all probability they returned in the evening of the previous day (that is, on the same day they were released). I recaptured these birds and found that the nares were still perfectly closed. The asphaltum had not been even scratched. Both birds were in splendid condition.

Experiments to Test the Water Habits of Terns.—In my previous report I made the statement that the terns are never seen in the water, unless they fall in by accident. I made no experimental test in 1907 of their conduct when forced to remain in the water. It is especially desirable in homing experiments to know whether these birds can rest on the water over night and still fly up from it in the morning. For example, the flight of 800 miles from Galveston to Bird Key can not be made in a day, and unless the bird can rest on the water at night they must perish. Exhaustive tests were made by placing a large wire cage in the water and confining the birds therein. I quote an experiment in detail.

Two noddies and two sooties were placed in the cage at 5.15 P.M. All the birds alighted on the surface of the water and then flew up and struck against the sides of the cage. Both noddies and sooties swam easily. The noddies seemed very much at home in the water. Their swimming movements were graceful and well coordinated. When alighting upon the surface of the water they folded their wings tightly against the body and held the breast and tail feathers high above the surface of the water.

The sooties on the other hand, arose and alighted clumsily. They kept their head and tail barely out of the water. Sometimes, indeed, the wings were stretched out in a very awkward way. In about two hours the birds became quiet, and ceased to fly against the sides of the cage. The noddies made just as vigorous efforts to get out as did the sooties. It soon became too dark to distinguish the birds and I then left them undisturbed until 8.30 in the morning of the following day. At that time *both noddies* were in *first class condition*, and were swimming as easily as

when first placed in the water. I opened the cage and both birds swam out and arose from the water.

One sooty was dead. The other was just *barely alive*. The feathers of this bird were all water-soaked. It was shivering with cold. It could neither swim nor fly. I carried the bird to the shore and put it in the sun, where it remained motionless for nearly two hours, and then flew away. I have repeated these experiments again and again and always with essentially the same results. I then modified the experiment slightly by tying small wooden floats ($\frac{1}{8}$ inch thick and 6 inches square) in such a way that they remained in the center of the cage, regardless of the tide. Under these conditions the birds, both noddies and sooties immediately utilized the floats, and remained resting upon them making few efforts to escape. Even the sooties are in perfect condition after a night spent in this way.

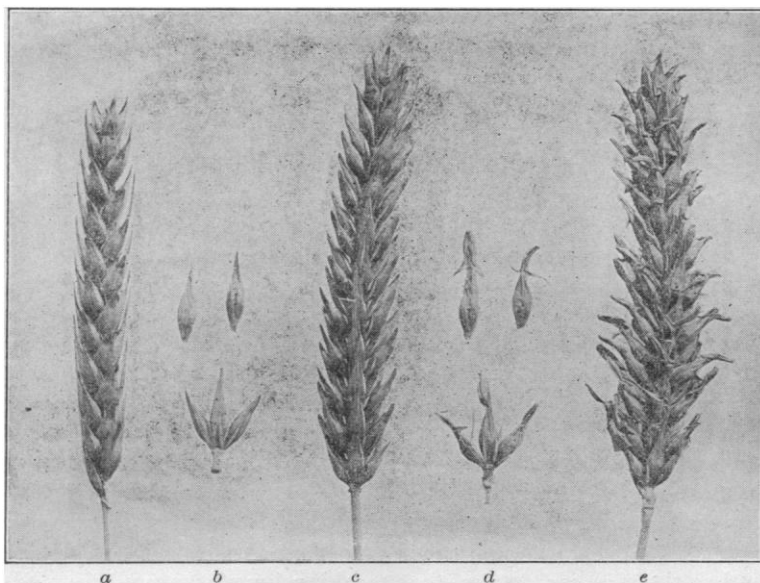
It seems well established by these experiments that the noddy can spend a whole night in the water and be little the worse for it, but that the sooty must perish unless floating driftwood or other objects afford it a resting place.

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A NEW AWNLESS BARLEY

A NEW and distinct type of awnless winter barley has been developed by the Office of Grain Investigations of the Department of Agriculture. It differs from the beardless barley now cultivated in that there is no appendage on the glume. This variety is a selection from among a large number of hybrids produced from a cross between Tennessee Winter, a white six-rowed variety (*Hordeum vulgare*), and Black Arabian, a black two-rowed variety (*Hordeum distichum*). In the third generation a peculiar form appeared in which the median spikelets contained awns from three to four inches long, while a few of the lateral spikelets contained rudimentary grains with short awns. These short-awned rudimentary grains were planted separately in



a, side view of head of new awnless barley; *b*, separate grains and spikelet; *c*, front view of the head; *d*, separate grains and spikelet of hooded barley; *e*, head of hooded barley.

the fall of 1907 and in 1908 produced heads similar to those in 1907 with the exception that on one plant were heads on which the greater portion of the lateral spikelets contained perfect kernels with short awns. The short-awned kernels from each head were planted in separate rows in the fall of 1908, and the plants produced from one of them in the summer of 1909 contained heads upon which all of the spikelets were fertile, the heads being six-rowed, with large plump grains without awns. The entire progeny was planted separately in the fall of 1909 in a head-to-row test, and of the several hundred heads produced in 1910 99 per cent. were of the awnless type. As this reduction of the awns was progressive and the heads have been awnless for two seasons, it is believed that the type is fixed. The variety has been named "Arlington." The fact that there is already a so-called type of beardless barley in existence will cause some confusion. It is proposed, therefore, that the name "hooded barley" be used for the old type, and this name will hereafter be used by the Office of Grain Investigations. The name beardless will only apply to the new hybrid.

The photograph illustrates both types.

H. B. DERR

THE AMERICAN CHEMICAL SOCIETY SAN FRANCISCO MEETING

A GENERAL description of the meeting has already appeared in *SCIENCE*. The usual abstracts of papers have been delayed in publication, owing to the loss of a trunk in transit which contained many of them and has but recently been found.

The general session of the society was held at the St. Francis Hotel on Wednesday morning, July 13, at which the following papers were presented. An abstract of the last paper is the only one received.

Positive Photography: W. D. BANCROFT. (Illustrated with lantern slides.)

Liquid Ammonia as a Solvent and the Ammonia System of Acids, Bases and Salts: E. C. FRANKLIN.

Chemistry in the Bureau of Standards: W. F. HILLEBRAND.

The Use of Sodium Benzoate as a Preservative of Food: H. E. BARNARD.

To warrant its use in foodstuffs a preservative must possess certain characteristics. It must not injure the health of the consumer; it must not facilitate careless methods of manufacture; it