The Danger to Greenwich Observatory.

BY CHARLES STIRRUP.

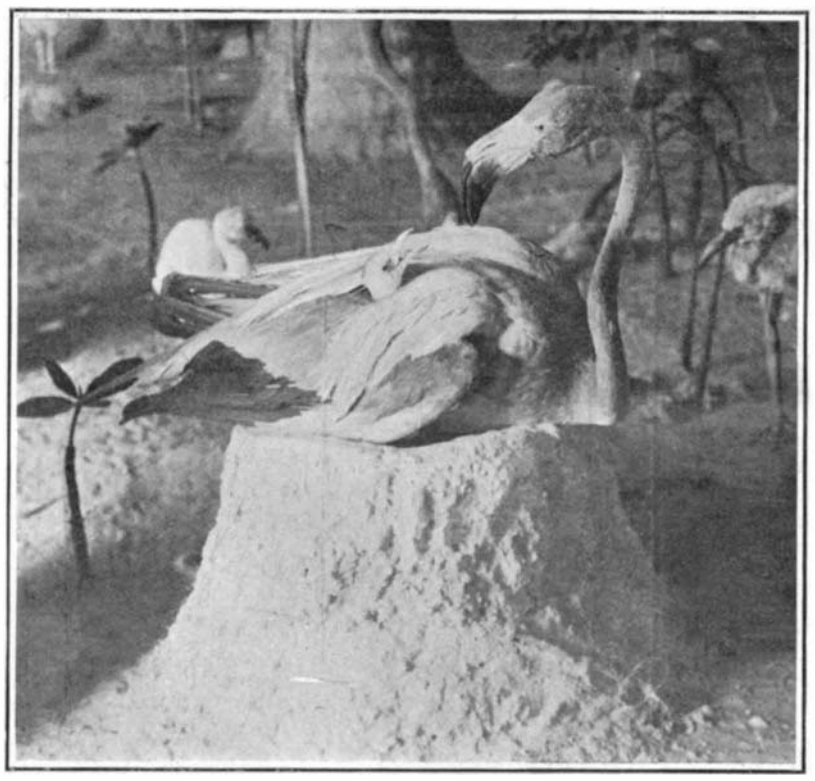
The welfare of Greenwich Observatory is a matter of international interest and importance, even if for no other reason than that the famous institution overlooking the Thames is accepted by the whole world as a standard meridian. In scientific circles in particular much concern is being felt for the observatory, for its usefulness, its very existence even, is threatened by a huge electric power house which has lately been erected half a mile away due north by the London County Council. The case is set out at considerable length in the London Times by Prof. H. H. Turner, of the University Observatory, Oxford, who was formerly on the Greenwich staff and is now a member of the Board of Visitors. He says that "the disturbance caused by the hot air and smoke from all the chimneys (of the power house) cannot fail to be serious, though it is at present impossible to estimate it quantitatively. But there is another source of disturbance of an alarming kind, of which direct evidence has already been obtained. In spite of various precautions taken, the engines of the generating station are so powerful that they shake the observatory. The delicate observations for radii, which furnish the reference points for Greenwich time and for terrestrial longitudes, indicate a state of constant vibration while the engines are running, which will be greatly increased if the full proposals of the London County Council are carried out. By the invitation of the Astronomer Royal I paid a special visit to Greenwich, . . . and was able to compare for myself the state of matters during the running of the engines and after they had stopped. The observations left no room for doubt as to the seriousness of the disturbance." The clash of interests brought about has naturally given rise to a number of suggestions on the part of laymen which, also naturally, are more or less impracticable. The issues at stake, as Prof. Turner puts it, are not properly understood by those who are unfamiliar with astronomical work of the kind which has made Greenwich famous. He goes on to say:

"The mischief that arises from tampering with a standard is even greater *in posse* than *in esse*. But it is, at the same time, very difficult to state concisely. I have been often asked whether it would not be better to move the observatory away from Greenwich, and it is almost impossible to state the objections in a manner commensurate with their importance. Suppose one were asked whether the pictures in the National Gallery could not be replaced by a set of well-made copies, it would be very difficult to state the objections in adequate language. One might lose one's temper and retain general sympathy; but a person who happened to be ignorant of art, and unwilling to accept public opinion, would not be convinced. There is a similar difficulty in explaining to those unfamiliar with science the impossibility of copying a standard—say the standard of length—and the consequent necessity of guarding it with the greatest care; and unfortunately in this case one cannot to the same extent take refuge in public support, since there are not so many who are sufficiently acquainted with the countless small details which make up the argument. To explain the issues involved in moving Greenwich Observatory is more difficult still; it could, no doubt, be done with time and patience, but to have to do it in the witness box under cross-examination might well make the stoutest heart quail. Is it unreasonable to ask those who have not time to acquire the necessary preliminary knowledge of fundamental astronomy to accept the views of those who spend their lives in such work and have no conceivable personal interest at stake?"

Quite apart from the question of utility, there is the sentimental objection to the transference of the observatory from Greenwich to some other place. Greenwich Observatory would then no longer exist, and we have to remember that it is by far the most famous institution of astronomical observation in the world. Established in 1675 for the advancement of navigation and nautical astronomy, it stood for one hundred and fifty years absolutely without a rival. During the eighteeenth century it was at Greenwich only that there were systematic observations of the sun, moon, stars, and planets, and astronomers the world over had to work from material supplied from the building at the top of the hill in Greenwich Park. It was at Greenwich that the aberration of light, the nutation of the earth's axis, and other famous discoveries were made and from Greenwich has been issued every year since 1767 that almost incalculably valuable compilation known as the "Nautical Almanac." At Rome, in October, 1883, the Geodetic Congress recommended the international unification of the hour and longitude with Greenwich, and just twelve months later forty delegates assembled at Washington agreed to the Royal Observatory being the prime meridian, the respective representatives of France and Brazil only abstaining. Greenwich Observatory belongs not merely to England, but to the world.

The Deutsch Aeronautic Prize.

The rules for the Henri Deutsch Cup, which is the leading aeronautic event of the season, have been decided upon at a recent meeting of the Sportive Commission of the Aero Club of France, and were presented by the special committee which was charged with the affair. According to the regulation, the Henri Deutsch Aeronautic Cup, which is a work of art having the value of $2,000, is to be awarded to the first aeronaut mounted on an airship or aviator who shall have made the circuit including St. Germain, Senlis, Meaux, Melun, St. Germain, in the region of Paris, without taking on supplies, in the direction and order which he may desire. The length of the circuit passing through the above localities is about 120 miles. The descent is not indispensable at the terminal point of the circuit, and it suffices to have closed the circuit above mentioned. As to the date of the start, the competitor is free to choose it, within the eight months of each year from March 1 to October 31. The trip is to be made between sunrise and sunset. At the end of eight months the competitor who has not been distanced is to return the cup to M. Henri Deutsch, and will receive in exchange the sum of $4,000 in cash. To have the cup change hands, the speed made by the second comer must be 10 per cent over that of his predecessor. The competitor who shall become the third holder of the cup under these conditions, will keep it definitely as his own property, outside of the prize of $4,000 which he will receive like his two predecessors. The rules are now fixed in the general lines, and only a few details remain to be decided upon. It is considered that the cup will have a great influence in promoting the question of airships and aeroplanes in France. Another prize which has recently been announced relates to an international concourse of airships which is to be held at Ostend Beach, one of the leading summer resorts on the Continent, during the season. The details of the event are not as yet made public, but it is stated that most of the leading aeronauts have promised to enter the event. A prize of $10,000, which is one of the largest ever offered, is to be awarded by M. Georges Marquet, the manager of the Casino. Further details of this event will be given shortly.



American Flamingo Brooding and Feeding Young, an Example of Modern Taxidermy.

Another crate of submerged coal was taken up from No. 2 basin in Portsmouth dockyard and is to be tested. It will be remembered that on May 16, 1903, the Admiralty ordered several crates to be filled with coal, each holding two tons, and all were lowered to the bottom of the basin on that day. At the same time several heaps of coal of similar description were placed on the coaling island and covered up, the object being to ascertain whether submerged coal retains its calorific properties better than that not submitted to this process. The crates of coal have been left submerged for various periods, and all previous tests have been in favor of the sea water process. The crate taken up last week had been submerged for three years.

THE MODERN TAXIDERMIST AND HIS ART.

BY B. S. BOWDISH.

Taxidermy is an art, and a science as well, and the present generation has revolutionized its methods and the ideals. The general idea of taxidermy has always been to preserve examples of wild life. Formerly the method was to place an awkwardly-mounted bird on a polished wooden pedestal or perch, and both bird and mount might have been carved from one piece of wood, for all the semblance of life. Sometimes one or more stiff specimens were placed in a case with an equally stiff and unnatural-looking collection of dried grasses. To-day the great aim of scientific taxidermy is to take a slice out of the wild life itself and place it in the museum, where for generations to come the people of the future as well as those of the present may see creatures of other portions of the globe, or such as may in their day have become extinct, apparently in life and enjoying their own chosen environments.

The American Museum of Natural History, of New York city, has been a pioneer in this, the new taxidermy. During the period when the late Jeness Richardson was chief of the taxidermy department, these group cases showing the home life of a pair or more of birds of some species began to appear.

At that time the late Mrs. Mogridge was introducing her methods of accessory work, which beautifully supplemented the fine skill in lifelike mounting of specimens with very perfect reproduction of natural environment in every detail. One of the early cases of this style was a group of little blue herons, with their nests, eggs, and young, in a mangrove. These nests were taken in the mangrove swamps of Florida by Mr. Richardson, packed, and brought North. In addition, the bushes in which they were found were collected, cut in sections, numbered, and brought home with the nests. The result was that the materials that made up the scene in the Florida swamp were transported into the New York museum, and there accurately reproduced the same scene to the smallest detail.

Since Mr. Richardson's time these methods of reproduction of the home life of natural groups of wild birds have been elaborated and developed. Mr. Frank M. Chapman, Assistant Curator of Birds and Mammals of the Museum, has the supervision of this work. For the past few years an attempt has been made to obtain material for cases of such birds as were getting scarce and liable to become extinct, or of groups whose natural habitat made them inaccessible to the observation of the general public. With this end in view, Mr. Chapman has made summer excursions to the haunts and breeding grounds of such birds, and there has gathered as exhaustive series of photographs as possible, showing the details of tbeir home life, in addition to specimens and other material for cases and very complete observations on conditions and habits. These have contributed to the public knowledge, not only by means of the object lessons that the cases afforded, but by illustrated lectures and magazine articles as well, for which the photographs furnished illustrations. Had such a course seemed feasible to the museum scientists of a generation ago, several species of birds which have since become extinct, and of which we now know very little, might be represented in accurate group cases in the museums illustrating their habits and environments, while our libraries would give us facts where now we have little more than conjectures.

In the summer of 1904 Mr. Chapman secured the material, photographs, and studies for one of the most remarkable groups that has ever been presented to a nature-loving public. Ever since the American flamingo had been known, there had been an element of mystery about the life of this striking bird. Eggs had found their way into the stocks of dealers, and from there into our boyish collections; rumors came to us that the birds built adobe homes which they straddled, with their long legs dangling awkwardly on either side. The flamingoes are exceedingly shy and retiring birds, and had often defied the efforts of the gunner to secure them, yet Mr. Chapman succeeded in erecting a blind, right in their very midst, making an elaborate series of photographs and a very complete study of the birds, natural and at ease in their homes. He exploded the notion that the flamingoes, while incubating, straddled the nest, his photographs showing the birds sitting on top of their nests with their long legs doubled under them in a perfectly normal manner. The tops of the nests may measure nearly a foot in diameter, while the bird's legs are placed only about three inches apart, hence such a position as that formerly ascribed to them is readily seen to be incongruous.

Almost at arm's length Mr. Chapman observed the

birds as they fed and brooded their young, incubated their eggs, slept on their nests, toyed with bits of wood to relieve the monotony of household cares, and stood on one leg while they preened their plumage.

The breeding grounds of the flamingoes are among the low, flat, uninhabited islands of the Bahamas, places appropriately termed "swash." Here shallow waters, the small crustacea on which the birds feed, and the marl from which they chiefly construct their adobe homes, combine in abundance; and where isolation affords the birds some promise of immunity from persecution, these birds make their abode.

It must not be inferred, however, that "they all lived happy ever after." In this land of tropical rains and fierce wind storms, the homes of an entire colony are liable to be inundated and wrecked, just as newborn life is about to reward the long and patient labors of incubation. Again, Mr. Chapman, after recording the fact that the rookery which he visited was later largely destroyed by negroes before the breeding season was over, says: "This, indeed, is doubtless the fate of every flamingo rookery in the Bahamas the whereabouts of which becomes known to the always half-starved negroes."

To these dangers must be added the most unaccountable of all, the certainty that no tourist with a firearm will lose a chance to destroy the beautiful and interesting creatures with which nature has gladdened the earth.

Thus where once existed many of these rookeries, sights to furnish truly "red-letter days" in the lives of the fortunate beholders, never to be forgotten, it is now a labor of long and patient search if the investigator is so lucky as to locate a single breeding ground. This bird is slowly passing before the inexorable advance of civilization, with its inexplicable, wanton destruction, and it seems likely that the time will come when even those wild, waste spots of the earth where these creatures have taken their last stand shall know them no more. Like the American buffalo and the American Indian, though once they peopled this land in almost countless numbers, yet a future generation shall know them in history only. Is it not, then, a fact that the public fails properly to realize what it owes to the combined scientific skill and the zeal, ardor, and unfailing enthusiasm of the naturalist, who, braving the dangers and hardships in the wild tropic isles, transports a group of these noble birds with their native environment and all the details of their home lives, almost living, breathing creatures in the perfection of their lifelike simulation, and plants it in the heart of the great metropolis, where the toilers, weary of the city's grind, can pause and gaze on one of nature's beautiful works?

Until a very few years ago the smaller seabirds were being slaughtered by the hundreds of thousands yearly to supply the millinery trade, while from the feeding grounds along the coasts, spring and fall, the sandpipers and small waders were shipped by the barrel to the game markets. At the time of the systematic organization of the Audubon movement, utter extermination threatened the least common, roseate, and other terns, the laughing and herring gulls, and in fact nearly all the bird life of the coasts. Before a check was brought to bear on the destruction, the numbers of many of these birds that once swarmed in countless hosts were so reduced that they will probably never recover, and some of them will doubtless gradually disappear forever. There is, therefore, the same interest in the lifelike cases of all these species that attaches to the bit of flamingo home life represented there.

Standing before this flamingo case, and shutting out all but the scene in front, one can lose one's self in the "swash" of the Bahama Islands, and so with the other scenes of bird life thus portrayed.

The redhead duck, in common with most others of its family, is now rare or wanting in many localities where once it abounded. As the swamps that formerly furnished nesting sites for the black-crowned night and other herons are drained and denuded of timber, the range and numbers of these birds are inevitably reduced, and it becomes harder and harder to find a rookery. In the northern and more settled part of its range the black-necked stilt becomes more and more of a straggler, as the greater numbers fall back on the semi-tropical southern range, where they are trapped by the natives of the West Indies and South America and shipped North, many of them to die. The cases, then, that represent all of these and many others are the only glimpse of their domestic economies that thousands of people will ever have, in fact are the only chances that most people will ever have to view the birds themselves. No other art has ever succeeded in so closely reproducing nature, and no reproduction can offer wider possibilities in the way of public education.

Young Black Tern in Second Plumage.

Redhead Ducks.

Flamingoes Nesting.

Black-Neck Stilt Adult and Young in Final Plumage.

A Breeding Colony of Flamingoes.

THE MODERN TAXIDERMIST AND HIS ART.

California's Grape Industry.

Upward of 250,000 acres are devoted to grape culture in California, which State produces more than two-thirds of the entire grape output of the country, the annual production of wine being over 30,000,000 gallons. At a conservative estimate the raisin and wine industries of California, in vineyards, cellars, cooperage, distilleries, machinery, and capital to carry on the business, represent an investment of at least $85,000,000. The dry and sweet wines produced in the last ten years amount to 255,000,000 gallons, an annual average of 25,500,000 gallons, and the brandy produced during the same time amounted to about 26,850,000 gallons.

Preparations are being made in Italy for the Brescia circuit race for the Florio Cup, which is to be one of the most important racing events of the season. It will be held during next September. The route which has been selected is of an oval form and is much shorter than last year's course. It will allow the highest possible speeds, as the road is to be put in the best shape, and there are many long straight portions and but few sharp turns. The Westrumite road-treating process is to be used over the whole course, and this can be easily done, seeing that the total distance is only 58 miles for one round. There are no neutralized places nor grade-crossings. From Brescia, where the cars start and the main tribunes are to be erected, the route passes by Castendolo and Montechiari, then makes a turn through Castiglione, running northward to a point near the Lac de Garde and returning to the starting point by way of Lonato. Count Bettoni is at the head of the local committee.