

ond, is to explore public opinion in its reactions to the problem, and its cure.

For this purpose eight key states were studied. For the northeast, New York; for the Lake States, Michigan and Wisconsin; in the South, Virginia, Alabama and Arkansas; and for the Pacific Northwest, Oregon and Washington.

In his analysis of the physical situation, Korstian briefly describes the important forest types and their present condition, the forestry measures which have been attempted, with especial reference to silviculture, and finally, gives examples of owners and operators who have adopted and are practicing forest management with the object of sustained, perpetuated yield from their holdings. No attempt could be made to present statistical summaries which would show the extent or degree to which these practices had superseded liquidation or satisfied future requirements, on a national or regional scope. It does serve to reveal

a marked and extensive trend away from past shortsighted indifference, towards permanent private management of forests.

The results of Korstian's second line of investigation, into the state of public opinion, reveals a definite trend of support for the antidote of public regulation of private cutting. But equally prevalent was the sentiment that such measures if found necessary should be left in the hands of state authorities, rather than centralized at Washington, D. C. Due emphasis is placed on the need for adequate control of forest fires, and continuance of federal aid under the existing cooperative plan embodied in the Clarke McNary law. Emphasis is also placed on expansion of public educational programs, cooperative assistance to owners, and extension forestry, especially as applied to the farm woodlands which alone embrace almost exactly 30 per cent. of all commercial forest land.

H. H. CHAPMAN

NEW HAVEN, CONN.

REPORTS

THE ARCHBOLD BIOLOGICAL STATION

It is announced by the Archbold Expeditions of the American Museum of Natural History that use of the facilities of the Florida station, previously reserved to staff members of the American Museum, will now be extended to a limited number of approved workers from other scientific institutions. The facilities will be available to workers in any field of biological research. A nominal charge to cover living and other expenses is contemplated, but the matter of cost relationships is left open for consideration in accordance with the requirements and circumstances of the studies of each individual.

The Archbold Biological Station is located at the southern end of the hill and lake region of peninsular Florida, about 25 miles south of Sebring and 32 miles west of Okeechobee. Established in 1941, it is maintained by Archbold Expeditions, an incorporated non-profit organization headed by Richard Archbold, research associate in the Department of Mammals at the American Museum. The establishment of the station was made possible through the generous gift by John A. Roebling of a thousand-acre estate, highly improved with service buildings, complete with working and maintenance plant and free of all encumbrance.

The original purpose of Archbold Expeditions was biological exploration in the Indo-Australian region, with emphasis on mammals, birds and plants. In the prosecution of this work, outstandingly successful expeditions were made to British New Guinea in 1933-1934 and 1936-1937, and to the Snow Mountains of Dutch New Guinea in 1938-1939. When in 1940 it

became apparent that, owing to disturbed political conditions in the Pacific, plans already maturing for another New Guinea expedition would have to be postponed indefinitely, attention was turned to related projects realizable in the United States. In the spring and early summer of that year, bird and mammal life history and behavior studies, and field experiments in color moving pictures and sound recording, were carried out in the southwestern deserts near Tucson, Arizona.

The Florida station was established to serve as a permanent home base for the expedition organization, and with the object of carrying out and aiding biological research in the United States. As opening projects, faunal surveys of the mammals and birds of the station and vicinity were made by A. L. Rand and Per Høst, members of the expedition staff. Rand also made studies in the life history and development of behavior of the burrowing owl, the Florida jay and other birds, in continuation of his well-known work in this field. Høst, now in war service, directed his attention to life history studies of the beach mouse and the spotted skunk, and research into the mechanism involved in color change in the plumage of birds, supplementing his field work with moving pictures of Florida wild life in color.

In 1943, various research projects were carried out at the station by staff members of the American Museum, working on a visiting fellowship basis. Included in these projects were life history studies of the round-tailed muskrat by John Eric Hill, collections of insects and spiders by Mont A. Cazier, life history studies of the Florida jay by Dean Amadon

and collections of ants and study of the ecology and behavior relations of the stump associations of ants and termites by T. C. Schneirla. During the spring and summer of the current year, Schneirla continued his investigations at the station. The late Henry C. Raven used the laboratory facilities for work toward the completion of his monograph on the anatomy of the gorilla. Raymond B. Cowles, of the University of California, and Charles M. Bogert conducted investigations into the thermal requirements of reptiles, in continuation of research first undertaken in the California deserts in 1939. Edwin H. Colbert made the station his headquarters for study of a subtropical environment in relation to interpretations involving faunal relationships and former ecological conditions of extinct vertebrates, combined with field and laboratory observations on living crocodilians.

The results of much of the foregoing work at the station have been, or will be, published in *Novitates* and the *Bulletin* of the American Museum of Natural History, as part of a subsidized series called "Results of the Archbold Expeditions," of which 51 numbers have appeared to date.

Probably no other locality, and certainly no other established station in southern Florida, offers such a variety of interest for zoological, botanical and ecological research. The station itself presents a rather uniform and long undisturbed sand-scrub habitat of oaks, saw-palmetto, sand-pine and slash-pine, but being centrally situated in a rich and diversified country, it gives easy access to other habitats such as pine flatwoods, bay-gall and cypress swamps, hardwood and cabbage-palm hammocks, dry prairies, wet prairies,

freshwater swamps, streams, canals and lakes. A rich representation of wading birds and water birds in the area surrounding the station, and nesting concentrations of herons, egrets and ibis, accessible for observation and experiments, are of special interest to the ornithologist. The station is well equipped not only for the types of research that have been carried out there in the past but for an expanded program. There are provisions for the maintenance of small animals in captivity and large rooms for work indoors. Laboratory equipment includes microscopes, microtome and apparatus for quantitative and qualitative analysis. There are a very complete photographic laboratory and an excellent machine shop. Motor transport is available up to the limit imposed by wartime restrictions.

In matters concerning research at the station, Archbold has the assistance of an advisory board consisting of H. E. Anthony (*chairman*), F. A. Beach, L. J. Brass, Per Høst, Robert Cushman Murphy and H. F. Schwarz, all at the American Museum, and A. L. Rand, at the National Museum, Ottawa. Inquiries from individuals or institutions interested in presenting programs involving research in specific problems which could with advantage be carried out at the station may be sent to Richard Archbold, Box 1309, Lake Placid, Florida, or to any member of the advisory board. Suggestions setting forth ideas for the development of the full potentialities of the station will be welcomed, and given every consideration in plans for the advancement of the aims to which the station is dedicated.

L. J. BRASS

SPECIAL ARTICLES

THE Rh SERIES OF ALLELIC GENES¹

WITH the aid of the three major varieties of human anti-Rh agglutinins, five variants of the Rh agglutininogen have been identified.^{2, 3, 4} According to the writer's genetic theory,⁵ which is now established,⁶ these blood properties are inherited by a series of six allelic genes, Rh_1 , Rh_2 , Rh' , Rh'' , Rh_0 and rh , named after the agglutinogens which they determine. These observations have been substantiated in full by Race

et al.,^{7, 8} working independently, who have in addition defined the reactions given by each Rh variant with so-called anti-Hr⁹ or anti-St¹⁰ sera. Moreover, Race *et al.* have partially defined another variant of the Rh agglutininogen, determined presumably by a special allelic gene,¹¹ tentatively designated Rh_y . As was mentioned in one of the earlier papers by the present writer,⁵ occasional bloods have been encountered in our work which give intermediate reactions, suggesting the existence of several additional variants of the Rh agglutininogen. The writer now believes that some of these atypical types are determined by special allelic genes, one of which possibly corresponds to the Rh_y gene of Race *et al.* As will be shown in this re-

¹ From the Serological Laboratory of the Office of the Chief Medical Examiner of New York City. Aided by a grant from the Carnegie Foundation through the Committee on Human Heredity of the National Research Council.

² A. S. Wiener and K. Landsteiner, *Proc. Soc. Exp. Biol. and Med.*, 53: 167, 1943.

³ A. S. Wiener, *SCIENCE*, 98: 182, 1943.

⁴ A. S. Wiener and E. B. Sonn, *Jour. Immunol.*, 47: 461, 1943.

⁵ A. S. Wiener, *Proc. Soc. Exp. Biol. and Med.*, 54: 316, 1943.

⁶ A. S. Wiener, E. B. Sonn and R. B. Belkin, *Jour. Exp. Med.*, 79: 235, 1944.

⁷ R. R. Race, G. L. Taylor, K. E. Boorman and B. E. Dodd, *Nature*, 152: 563, 1943.

⁸ R. R. Race, G. L. Taylor, D. F. Cappell and M. N. McFarlane, *Nature*, 153: 52, 1944.

⁹ P. Levine, *Jour. Ped.*, 23: 656, 1943.

¹⁰ R. R. Race and G. L. Taylor, *Nature*, 152: 300, 1943.

¹¹ R. R. Race and G. L. Taylor, *Nature*, 153, 560, 1944.