SOCIETIES AND MEETINGS

FIRST NORTH CENTRAL STATES FISH AND GAME CONFERENCE

NEARLY 200 persons interested in wildlife research from Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio and Wisconsin met at Urbana, Illinois, December 5 and 6, 1935, for the First North Central States Fish and Game Conference. This meeting was the outgrowth of correspondence between the chief of the Illinois Natural History Survey and conservation administrators and biologists in neighboring states. The purpose of this parley was to discuss research problems and methods pertaining to the preservation and sound utilization of wildlife resources and to develop more coordinated and cooperative investigational programs between the states represented.

For two days, December 5 and 6, the conference listened to more than forty scientists in discussions of a wide range of subjects concerning fish and game conservation. On December 7 more than fifty were guests of the Illinois Natural History Survey on a field trip to Havana, Illinois, and the Illinois River about 100 miles west of Urbana. Those attending the field trip were shown wildlife habitats typical of the Illinois River bottomland territory and learned of the survey's research involving the state's resources of fish and game.

Because of the large attendance and variety of the program the conference was divided into general, fisheries and game sections. The general section was opened by T. H. Frison, who presided as general chairman of the meeting and banquet, with a talk pointing out the need for such a parley and reasons for confining the call for the conference to the states in attendance. Appearing on the program of the general section were: W. C. Allee, professor of zoology, University of Chicago; Samuel A. Graham, professor of economic zoology, University of Michigan; Byron L. Groesbeck, assistant chief senior forester, Region Nine, National Forest Service; R. G. Green, Department of Bacteriology and Immunology, University of Minnesota; Ernest G. Holt, in charge wildlife conservation, U. S. Soil Conservation Service; Will Scott, professor of zoology, Indiana University; Victor E. Shelford, professor of zoology, University of Illinois; Milton B. Trautman, assistant director, Institute for Fisheries Research, University of Michigan; Harley J. Van Cleave, professor of zoology, University of Illinois; and Leonard W. Wing, Department of Agricultural Economics, University of Wisconsin.

The banquet, which on Friday evening closed the general discussions, crowded nearly 300 persons into the Urbana-Lincoln Hotel to hear J. N. Darling, Aldo Leopold, W. B. Bell, A. M. Bailey and S. Barry Locke cover the field of wildlife investigations and programs from angles of criticism, commendation, reproof, explanation, encouragement and appeals for cooperation.

J. N. "Ding" Darling, recently resigned chief of the U. S. Biological Survey, made clear his resignation as "due to completion of the job I went to Washington to do." Scoring wildlife enthusiasts for failing to unite to secure legislation in protection of fish and game, Mr. Darling took some of the sting out of his remarks by humorous interpretation of factors behind Congressional legislation, or lack of it, on wildlife. W. B. Bell, chief of the Division of Wildlife Research, U. S. Biological Survey, emphasized the cooperative aspects of federal wildlife conservation work in the north central states. S. B. Locke, conservation director of the Izaak Walton League of America, spoke about the league's efforts at popular education for appreciation of wildlife values by sportsmen and others. A. M. Bailey, director of the Chicago Academy of Sciences, showed and explained motion pictures which he had made in several parts of the United States. His subjects ranged from migratory waterfowl of many kinds to moose, hawks, antelope and bears of the Yellowstone. Aldo Leopold, in charge of game research investigations, University of Wisconsin, illustrated by means of lantern slides his subject, "A Day's Hunt on an Estate in Silesia." The peculiar system of game management in that part of Germany and the type of sport it affords were the basis of Mr. Leopold's talk, which he selected from his experiences while abroad this summer studying game management practices in Europe.

On the program of the fisheries section were: Harry E. Adams, National Forest Service; W. W. Aitken, Iowa Conservation Commission; A. E. Andrews, Indiana Department of Conservation; F. A. Brown, Jr., University of Illinois; C. F. Culler, U. S. Bureau of Fisheries; Chancey Juday, University of Wisconsin; T. H. Langlois, Ohio Conservation Division; Lee S. Roach, Ohio Conservation Division; C. L. Schloemer, University of Wisconsin; Will Scott, Indiana University; T. Surber, Minnesota Department of Conservation; David H. Thompson, Illinois Natural History Survey; Milton B. Trautman, Institute for Fisheries Research, University of Michigan; John Van Oosten, U. S. Bureau of Fisheries; and E. L. Wickliff, Ohio Conservation Division.

The game section had an extensive program on which appeared: Logan J. Bennett, U. S. Biological Survey; Rudolf Bennitt, University of Missouri; H. L. Blakey, National Forest Service; J. N. Darling, Des Moines, Iowa; Paul L. Errington, Iowa State College;

Gill Gigstead, Wisconsin Department of Conservation; George O. Hendrickson, Iowa State College; Lawrence E. Hicks, U. S. Soil Conservation Service; Ralph T. King, University of Minnesota; Aldo Leopold, University of Wisconsin; Frederick C. Lincoln, U. S. Biological Survey; Miles D. Pirnie, W. K. Kellogg Bird Sanctuary, Michigan State College; H. D. Ruhl, Michigan Department of Conservation; George Saunders, Michigan Department of Conservation; R. E. Trippensee, Massachusetts Agricultural College; Farley F. Tubbs, Michigan Department of Conservation; Douglas E. Wade, University of Wisconsin; E. L. Wickliff, Ohio Conservation Division; H. M. Wight, School of Forestry and Conservation, University of Michigan; and R. E. Yeatter, Illinois Natural History Survey.

The Illinois Natural History Survey, as host organization of the meeting, held open house on Thursday night, December 5, and invited conference members and townspeople to inspect its laboratories and offices located on the campus of the University of Illinois, and later to see several reels of new wildlife motion pictures.

The conference voted to make an annual affair of the meeting so successfully initiated at the first parley, not to have a constitution or formal organization, and to preserve the open discussion system which characterized the Urbana gathering. Ann Arbor, Michigan, was selected by the assemblage as the place for the next meeting, and Dr. Samuel A. Graham, of the University of Michigan, was appointed by a special committee to act as chairman for the 1936 conference.

T. H. FRISON

SPECIAL ARTICLES

THE INFLUENCE OF HYPERPNEA AND OF VARIATIONS IN THE O_2- AND CO_2-TENSION OF THE INSPIRED AIR ON WORD-ASSOCIATIONS

IN three preceding papers, Gellhorn and Spiesman[1] have investigated the influence of variations in the O_2- and CO_2-tension in the inspired air and of voluntary hyperpnea on several cortical processes (vision, hearing), as well as on a brain stem reflex (caloric nystagmus). It seemed desirable to extend these investigations to a quantitative study of higher mental processes for two reasons: (1) to improve our understanding of the nervous and mental symptoms following profound anoxemia and similar conditions; (2) to compare the effect of the same factors on physiological cortical processes (vision, hearing) and on one of those which are commonly designated to-day as psychic processes.

The experiments were carried out with the Kent-Rosanoff[2] association test, which consists of 100 words standardized on 1,000 normal persons so that the usualness of response can be expressed quantitatively. Fifty words served as a control and the other fifty words were used in order to study the effect of O^2-lack, etc., on associations. In control experiments carried out on 25 subjects the associations formed to the first 50 words were compared with those obtained from the second 50 words. The associations were divided into four groups corresponding to their frequency in the Kent-Rosanoff tables. The total number of responses was determined for each of the four groups (comprising the individual responses (0-group), and those occurring 1–15, 16–100, and more than 100 times in the frequency tables), and the change between the first and the second 50 associations was expressed in percentage of the former (heavy line in Fig. 1). The

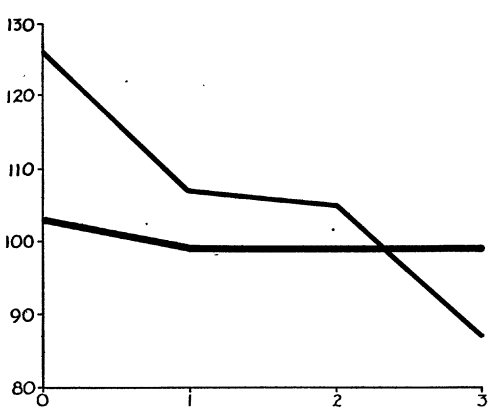

FIG. 1

Ordinate: change in usualness of response between the first and the second 50 words expressed in percentage of the former.

Abscissa: 0 = individual responses, 1, 2, 3 = responses with the frequency 1–15, 16–100, and more than 100 respectively.

Heavy line = control.

Thin line = the effect of 0_2-lack.

figure indicates that the frequency of responses remains practically the same in both groups of 50 words under standard conditions.

Hereafter fifty experiments on O_2-lack were carried out with 31 normal subjects, who inhaled N_2-air mixtures (O_2 between 7.3 per cent. and 11 per cent., in the majority of experiments 8 to 9 per cent.) from a Douglas bag for 6 to 10 minutes.

[1] E. Gellhorn and I. Spiesman, *Proc. Soc. Biol. and Med.*, 32: 46 and 47, 1934; and *Am. Jour. Physiol.*, 112: 519, 620 and 662, 1935.

[2] G. H. Kent and A. J. Rosanoff, *Am. Jour. Insanity*, 67: 37, 1910.