

firmed, we have made a few additional observations in order to completely satisfy ourselves in the matter. Having gathered the data, we feel that it should be reported, since we find but slight mention of the phenomena in current physiological treatises we have had the opportunity to examine.<sup>2</sup> We have exhausted the available original sources at our command and very little has been found. We have the impression that very thorough observations have long since been made and recorded, but in view of the above conditions we feel justified in recording briefly our observations in order to recall attention to the phenomena. We may add that we hope to more thoroughly exhaust the literature as opportunity affords, and if it then seems desirable, to publish our results in greater detail.

Our data show that in all animals observed, only momentary or no dilatation of the pupils occurs during the first stage of rapid asphyxia (*e. g.*, by bleeding or by clamping the trachea or by insufflating the lungs with carbon dioxide or hydrogen gas), and that as a rule a *very marked constriction* of the pupils occurs during this stage. We have observations on sheep, rabbit, guinea pig, squirrel, rat, mouse, dog, cat, chicken, guinea fowl, pigeon, dove, sparrow and snake. As yet our data are incomplete on the effect of section of the nerves governing the pupil on the asphyxial changes.

It is interesting to note the post mortem differences observed in the size of the pupils in different animals, *e. g.*, cats show wide dilatation, while common gray rabbits, as a rule, show marked constriction. It is known that the eye (excised) of a frog or eel constricts its pupil on exposure to light, and dilates it in the dark; and that even the isolated iris of the eel contracts in the light.<sup>3</sup>

<sup>2</sup> For example, Starling, "Text-book of Physiology," p. 404, 1907, merely mentions constriction of the pupils in early stages of asphyxia; Paton, "Essentials of Human Physiology," 1905, p. 306, states that in the initial stage of acute asphyxia the pupils are small, while a number of writers do not mention it at all.

<sup>3</sup> Stewart, "Manual of Physiology," fifth edition, p. 798.

Photoc stimulation, the "at rest" condition of the pupil, etc., obviously should be taken into consideration in drawing conclusions on the size of the pupil in the eyes of dead animals or in excised eyes.

C. C. GUTHRIE,  
F. V. GUTHRIE,  
A. H. RYAN

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THE AMERICAN ASSOCIATION FOR THE  
ADVANCEMENT OF SCIENCE  
SECTION D

PROFITING by the experience of former meetings and in accordance with the actions of the council and section at the Baltimore meeting, the chairman and secretary of Section D, in arranging the program for the Boston meeting, had in mind, in addition to the accommodation of papers volunteered by the members at large, a program, to be covered in a small number of sessions and in the compass of two days, which should provide: (a) a "general interest" session, including the address of the retiring vice-president; (b) a series of solicited papers on aeronautics and related subjects; (c) a joint session with Sections A and B.

As a result of the plans thus formulated, the section held a session on Tuesday morning, December 28, at which in addition to the business of the organization and election of officers, papers on miscellaneous subjects were presented; a session on Wednesday morning, devoted to papers on aeronautics, and the general interest session on Wednesday afternoon. On Tuesday afternoon the members of the section attended a joint session of Sections A and B.

Professor A. Lawrence Rotch was elected chairman of the section and a vice-president of the association for 1910; Professor W. J. Humphreys, member of the sectional committee for five years; President F. W. McNair, member of the council for 1910, and Mr. A. M. Herring, member of the general committee for the Boston meeting.

Vice-president J. F. Hayford presided at all meetings of the section. The program in detail is given herewith:

TUESDAY A.M., DECEMBER 28

"Some Notes on the Cutting of Music Rolls and on a New Machine for Making Master or Pattern Rolls," J. F. Kelly, Pittsfield, Mass. (Presented by Walter Reed.)

"A Pitot Tube Steam Meter," E. H. Lockwood, New Haven, Conn.

"Production Engineering," A. A. Hamerschlag, Pittsburgh, Pa. (Presented by the secretary.)

"Recent Improvements in Ore Concentration Machinery," R. H. Richards, Boston, Mass.

"A Parallel Rule," H. E. Wetherill, Philadelphia, Pa. (Read by title.)

"The Photographic Lens as an Engineering Instrument," E. H. Berry, East Orange, N. J. (Read by title.)

#### WEDNESDAY A.M., DECEMBER 29

"The Changes of the Wind with Altitude," A. J. Henry, Mount Weather, Va. (Presented by W. J. Humphreys.)

"Wind Pressure and Velocity," S. P. Ferguson, Hyde Park, Mass.

"The Relation of Wind to Aeronautics," A. Lawrence Rotch, Hyde Park, Mass.

"Turbulent Surface Winds," W. J. Humphreys, Washington, D. C.

"Aerodynamics," A. M. Herring, New York, N. Y.

"Vertical Air Currents and their Office in Supporting a Moving Aerofoil," F. W. Very, Westwood, Mass.

"The Center of Pressure on Arched Surfaces," M. B. Sellers, Fireclay, Ky. (Read by title.)

"Interference of Aeroplane Surfaces due to Grouping," M. B. Sellers, Fireclay, Ky. (Read by title.)

"Vagaries of Air Currents," A. T. Atherholt, Philadelphia, Pa. (Read by title.)

"The Pneumodynamic and the Thermodynamic Function," J. M. Siebel, Chicago, Ill. (Read by title.)

"General Design for an Aerial Machine of High Speed and Efficiency," David Todd, Amherst, Mass. (Read by title.)

"Some Applications of the Laws of Aerial Viscosity to Problems of Aviation," F. W. Very, Westwood, Mass. (Read by title.)

#### WEDNESDAY P.M., DECEMBER 29

Vice-presidential address<sup>1</sup>—"The Profession of Engineering and its Relation to the American Association for the Advancement of Science," G. F. Swain, Boston, Mass.

"The Development of the Modern Textile Mill," C. J. H. Woodbury, Boston, Mass.

"The Present Status of Aerial Navigation,"<sup>2</sup>

<sup>1</sup> Published in full, *SCIENCE*, February, 1910.

<sup>2</sup> To be published in full in *SCIENCE*.

Octave Chanute, Chicago, Ill.

The meetings of the section were well attended, the papers were valuable contributions and the discussions interesting. Those responsible for the program appreciate the efforts of the members who prepared and presented the papers and feel that the meeting was in all respects very encouraging.

G. W. BISSELL,  
*Secretary*

EAST LANSING, MICH.

#### THE AMERICAN PHYSIOLOGICAL SOCIETY

THE twenty-second annual meeting of the American Physiological Society was held in the physiological laboratories of the Harvard Medical School, Boston, Mass., December 28-30, 1909. Sixty-nine of the one hundred and sixty members of the society were in attendance. The officers of the meeting were W. H. Howell, president, and R. Hunt, secretary.

The following papers and demonstrations occupied the six scientific sessions:

#### JOINT MEETING WITH SECTION K—PHYSIOLOGY AND EXPERIMENTAL MEDICINE—AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Address of the retiring vice-president—"Chemical Regulation of the Body-processes by Means of Activators, Kinases and Hormones," W. H. Howell.

#### Symposium on Internal Secretion:

"A General Review of the Chemical Aspect of Internal Secretion," R. H. Chittenden.

"The Internal Secretion of the Pancreas," W. G. McCallum.

"Our Present Knowledge of Thyroid Function," S. P. Beebe.

"Metabolism after Parathyroidectomy," J. V. Cooke.

"Physiological Consequences of Total and of Partial Hypophysectomy," H. Cushing.

#### JOINT SESSION WITH THE AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS

"On the Reversible Reaction for the Liberation of Carbonic Acid from the Blood in the Lung," L. J. Henderson.

"The Action of Certain Substances on the Respiratory Center," A. S. Loevenhart (with W. E. Grove).

"Some Reactions of Lipase of Human Pancreatic Juice," H. C. Bradley.