tion to zoology was, however, an earlier paper (published as his doctor's dissertation) on the Spermatogenesis of *Anasa tristis*, which formed one of the first careful studies of the history of the 'accessory chromosome' since its discovery by Henking, and which gave important data for the general study of the reproduction problem in animals. He was a good observer, an enthusiastic field naturalist, and a master of the finer laboratory technique. He bore with cheerful courage a malady that for many years formed an obstacle to his scientific activity and at length caused his death. He had many interests outside the field of his special work and was a generous and helpful friend.

E. B. W.

MECHANICAL FLIGHT.

MESSRS. ORVILLE WRIGHT and Wilbur Wright, of Dayton, Ohio, under date of March 12, 1906, have addressed the following statement to the Aero Club of America:

Though America, through the labors of Professor Langley, Mr. Chanute, and others, had acquired not less than ten years ago the recognized leadership in that branch of aeronautics which pertains to bird-like flight, it has not heretofore been possible for American workers to present a summary of each year's experiments to a society of their own country devoted exclusively to the promotion of aeronautical studies and sports. It is with great pleasure, therefore, that we now find ourselves able to make a report to such a society.

"Previous to the year 1905 we had experimented at Kitty Hawk, North Carolina, with man-carrying gliding machines in the years 1900, 1901, 1902 and 1903; and with a man-carrying motor flyer, which, on the 17th day of December, 1903, sustained itself in the air for 59 seconds, during which time it advanced against a 20-mile wind a distance of 852 feet. Flights to the number of more than 100 had also been made at Dayton, Ohio, in 1904, with a second motor flyer. Of these flights, a complete circle made for the first time on the 20th of September, and two flights of 3 miles each made on the 9th of November and the 1st of December, respectively, were the more notable performances.

"The object of the 1905 experiments was to determine the cause and discover remedies for several obscure and somewhat rare difficulties which had been encountered in some of the 1904 flights, and which it was necessary to overcome before it would be safe to employ flyers for practical purposes. The experiments were made in a swampy meadow about 8 miles east of Dayton, Ohio, and continued from June until the early days of October, when the impossibility of longer maintaining privacy necessitated their discontinuance.

"Owing to frequent experimental changes in the machine and the resulting differences in its management, the earlier flights were short; but, towards the middle of September, means of correcting the obscure troubles were found, and the flyer was at last brought under satisfactory control. From this time forward almost every flight established a new record. In the following schedule the duration, distance and cause of stopping are given for some of the later flights.

"It will be seen that an average speed of a little more than 38 miles an hour was maintained in the last flight. All of the flights were made over a circular course of about three fourths of a mile to the lap, which reduced the speed somewhat. The machine increased its velocity on the straight parts of the course and slowed down on the curves. It is believed that in straight flight the normal speed is more than 40 miles an hour. In the earlier of the flights named above less than 6 pounds of gasoline was carried. In the later ones a tank was fitted large enough to hold fuel for an hour, but by oversight it was not completely filled before the flight of October 5.

"In the past three years a total of 160 flights have been made with our motor-driven flyers, and a total distance of almost exactly 160 miles covered, an average of a mile to each flight, but until the machine had received its final improvements the flights were mostly short, as is evidenced by the fact that the flight of October 5th was longer than the 105 flights of the year 1904 together.

Sept. 26	17,961 meters (11⅛ miles)	18 min. 9 sec. Exhaustion of fuel.
Sept. 29	19,570 meters (12 miles)	19 min. 55 sec. Exhaustion of fuel.
Sept. 30	.....	17 min. 15 sec. Hot bearing.
Oct. 3	24,535 meters (15¼ miles)	25 min. 5 sec. Hot bearing.
Oct. 4	33,456 meters (20¾ miles)	33 min. 17 sec. Hot bearing.
Oct. 5	38,956 meters (24⅕ miles)	38 min. 3 sec. Exhaustion of fuel.

"The lengths of the flights were measured by a Richard anemometer which was attached to the machine. The records were found to agree closely with the distance measured over the ground when the flights were made in calm air over a straight course; but when the flights were made in circles a close comparison was impossible because it was not practicable to accurately trace the course over the ground. In the flight of October 5th a total of 29.7 circuits of the field was made. The times were taken with stop-watches. In operating the machine it has been our custom for many years to alternate in making flights, and such care has been observed that neither of us has suffered any serious injury, though in the earlier flights our ignorance and the inadequacy of the means of control made the work exceedingly dangerous.

"The 1905 flyer had a total weight of about 925 pounds, including the operator, and was of such substantial construction as to be able to make landings at high speed without being strained or broken. From the beginning the prime object was to devise a machine of practical utility, rather than a useless and extravagant toy. For this reason extreme lightness of construction has always been resolutely rejected. On the other hand, every effort has been made to increase the scientific efficiency of the wings and screws in order that even heavily built machines may be carried with a moderate expenditure of power. The favorable results which have been obtained have been due to improvements in flying quality resulting from more scientific design and to improved methods of balancing and steering. The motor and machinery possess no extraordinary qualities. The best dividends on the labor invested have invariably come from seeking more knowledge rather than more power."

Very respectfully,
(Signed) Orville Wright.
(Signed) Wilbur Wright.

SCIENTIFIC NOTES AND NEWS.

Dr. Walther Nernst, professor of physical chemistry in the University of Berlin, will give this year the Silliman lectures at Yale University.

Sir George Darwin arrived in New York on March 23. He will represent the Royal Society, the British Association, the Royal Institution and the University of Cambridge at the anniversary meeting of the American Philosophical Society to commemorate the two hundredth anniversary of the birth of Benjamin Franklin, its founder.

Dr. Heinrich Bruns, professor of astronomy at Leipzig, and Dr. Hugo von Seeliger, professor of astronomy at Munich, have been elected corresponding members of the Berlin Academy of Sciences.

Professor Robert Koch, of Berlin, has been elected a foreign member of the Brussels Academy of Sciences.

Professor J. M. Pernter, director of the Vienna Meteorological Bureau, has been elected an honorary member of the London Meteorological Society.

Professor William A. Kellerman, of the Ohio State University, has returned from Guatemala where for three months he has been studying and collecting parasitic fungi. He reports a very interesting and satisfactory trip, and brings from several sections, especially from the higher altitudes including three volcanoes, a very large quantity of material for critical study. No mycologist has traversed these regions before, and it is expected that interesting results will be secured.

Dr. Paul Kuckuck, curator of the Biological Institute of Heligoland, has been granted the title of professor by the German government.

M. Bouquet has been appointed astronomer in the Paris Observatory.

Dr. F. W. Clarke, professor of mineral chemistry, George Washington University, will give a special course of lectures in chemical geology on Mondays at 4:50 P.M. as follows:

April 2.—'Introductory: The Elements and the Atmosphere.'
April 9.—'The Hydrosphere.'
April 16.—'The Magma and the Igneous Rocks.'
April 23.—'The Sedimentary Rocks.'
April 30.—'Ore Deposits.'
May 7.—'Coal, Petroleum and Natural Gas.'

Mr. William Sowerby, for many years secretary of the Royal Botanic Society, Regent's Park, died in Hertfordshire, on March 9.

The death is also announced of Dr. Hermann Lorberg, associate professor of physics in the University of Bonn; of Albert Nilsson,