The following communication from a member of the society was received by the secretary too late for presentation at the Princeton meeting:

A Peculiar Structure in the Embryo of the Honey Bee: JAS. A. NELSON, U. S. Department of Agriculture.

In embryos from fertilized eggs of the honey bee, at the time when the germ layers are forming, but before the lateral folds have begun to unite, a small lenticular mass appears on the dorsal side of the egg, close to the cephalic pole. Its outer surface is almost plane, its inner strongly convex and studded with numerous delicate processes which join with the protoplasmic meshwork of the interior of the egg. This mass, which will be termed provisionally the cephalo-dorsal disk, appears to be a syncitium, composed of rather clear and vacuolated cytoplasm, within the inner half of which numerous nuclei are embedded. It lies at the surface of the egg and is continuous at its edges with the surrounding blastoderm. This structure was first noticed in 1904 by O. Dickel, who called it the "yolk plug." Dickel identified the point in the blastoderm where it first appeared as the blastopore, described the disk as formed by the migration of yolk cells to this point, and sought to connect it with the rudiments of the mesenteron, in an endeavor to interpret the process as gastrulation. A study of the antero-dorsal disk in sections of eggs of various ages shows: (1) that the so-called yolk plug does not arise from yolk cells, but from the blastoderm of the dorsal side of the egg by a cephalad migration of its cells and their aggregation at this point; (2) that at no time has the cephalo-dorsal disk any connection with the rudiments of the mid-intestine; (3) that during the stages immediately following the formation of the germ layers it becomes broken up into amœboid cells which wander off into the yolk at the cephalic end of the embryo. It therefore appears to be a center of distribution for cells from the blastoderm to the yolk. Its homologies are obscure, although Hirschler (1908) has described a somewhat similar structure which he called the "dorsal organ," in the egg of the chrysomelid beetle *Donacia*. It is also interesting to note that the cephalo-dorsal disk has, in its position, time of appearance and structure a very close resemblance to the cell mass described by Petrunkewitsch in the drone egg as derived from the polar bodies and later forming the male sex cells.

The following exhibits were made during the meeting of the society:

An Early Human Cranium: H. H. WILDER, Smith College.

Microscopical Preparations of Epithelium of Plathelminths: R. T. YOUNG, University of North Dakota.

Microscopical Preparations to Show Amitosis in the Testis of Tœnia serrata: R. T. YOUNG, University of North Dakota.

JOHN H. GEROULD,
Secretary

DARTMOUTH COLLEGE

THE AMERICAN INSTITUTE OF CHEMICAL ENGINEERS

THE fourth annual meeting of the American Institute of Chemical Engineers was held in Washington, D. C., December 20–23.

The reports of the various officers for the year were read, and a very gratifying growth in membership was shown. New officers for the year were elected as follows:

President—Dr. L. H. Baekeland. *Second Vice-president*—Dr. T. B. Wagner. *Third Vice-president*—Professor M. C. Whitaker; the first vice-president being Dr. Eugene Haanel. *Treasurer*—Dr. F. W. Frerichs. *Secretary*—Dr. John C. Olsen. *Auditor*—Mr. G. W. Thompson. *Directors*—Messrs. A. C. Langmuir, H. S. Miner and A. Bement.

The following papers were read at the Wednesday morning session:

"The Hardening of Plasters and Cements and a Simple Chronographic Apparatus for Recording Set," Dr. Chas. F. McKenna. A very ingenious as well as simple instrument for measuring and recording this important property of cements was shown and explained by Dr. McKenna.

"Advances in Testing Explosives," Clarence Hall.

"Distribution of Power in Portland Cement Manufacture," Richard K. Meade.

"Problems in the Manufacture of C.P. Acids," J. T. Baker.

"Combustion of Pulverized Coal," L. S. Hughes.

"Manufacture of Gelatin," Ludwig Thiele.

During the afternoon the institute visited the Bureau of Standards and inspected the standardization of weights and measures, adjustment of pyrometers, thermometers, pressure gauges and similar instruments, as well as the liquid air apparatus. Every one was impressed by the very excellent work being done by this important government bureau.

In the evening the retiring president, Dr. F. W. Frerichs, presented three papers illustrating the solution of problems in chemical engineering practise as follows: "Manufacture of Chloroform from Alcohol," "Construction of Laboratory Apparatus," "Manufacture and Testing of Shipping Cylinders for Liquid Ammonia." The paper on the "Manufacture of Chloroform from Alcohol" was especially interesting, as it showed that by the use of denatured, duty-free alcohol, chloroform could be manufactured from alcohol under present conditions and sold at a profit. The paper on "Manufacture and Testing of Shipping Cylinders for Liquid Ammonia Gas" was supplemented by the paper on "Manufacture and Testing of Carbonic Acid Cylinders," by John C. Minor, Jr. By means of lantern slides the method of testing cylinders was shown, as well as the results of exploding such cylinders under fixed conditions.

On Thursday, the institute visited the United States naval proving grounds at Indian Head, Md. This proved one of the most interesting excursions of the meeting. Four shots were fired from a twelve-inch gun. The method of loading, testing the pressure developed in the gun and velocity of the bullet were shown and inspected with the greatest of interest.

The plants for contact sulphuric acid, nitric acid, the manufacture of ether, nitration of cellulose, powder presses, recovery drying, as well as the testing of the raw materials and finished product were inspected with the greatest of interest.

In the evening a subscription dinner was held at the New Willard Hotel. Addresses were made by Patent Commissioner Moore, Dr. Harvey W. Wiley and Admiral N. C. Twining.

On Friday morning the institute listened to a number of very able speakers on the United States patent system. A symposium had been arranged for the purpose of bringing out defects in the present system and recommendation of the remedies to be applied. The following papers had been prepared and were presented:

"The United States Patent Office," E. B. Moore, Patent Commissioner, U. S. Patent Office.

"Protection of Inventions by Patents. Existing Defects and Remedies Therefor," Walter D. Edmonds, of Edmonds & Peck.

"The United States Patent System," R. N. Kenyon, of Kenyon and Kenyon.

It was the consensus of opinion that the present methods for granting of patents in use at the United States Patent Office are better than any in use by any government in the world. The deplorable condition at the Patent Office on account of congestion and overcrowding due to the failure of the congress to provide suitable quarters for this most important government office, was brought out not only in the papers, but in the visit to the Patent Office during the afternoon. This condition prevails in spite of the fact that the patent bureau has been operated with such economy that a surplus of seven million dollars has accrued during its operation from excess of income from patent fees over expenditures.

It was also brought out that the most serious defects in our present patent system are met by the inventor after his patent has been granted. Intolerable delays occur, and enormous expense is involved in patent litigation, so that in numerous cases the patentee who does not have the strongest financial backing is defrauded of his rights by wealthy and powerful corporations. The remedy suggested for this condition of affairs consists in the establishment of a patent court in which all patent cases will be held, and also the hearing of all testimony in such cases in open court instead of before a referee.

On Friday afternoon the educational discussion which has been carried on at various meetings of the institute was continued, and the committee on education was requested to formulate the opinion of the institute on this important question and transmit copies of same to the universities and technical schools in the United States giving chemical engineering education.

On Friday evening, a paper was read by Mr. F. G. Wheeler on the "Adaptation of the Centrifugal Pump to Chemical Service." A complete discussion of the theories of the pump and all designs and makes with their behavior under operating conditions was given. The pump was illustrated with numerous lantern slides giving views of the pumps discussed.

A number of members of the institute visited on Saturday the steel plant at Sparrows Point, Baltimore, and the cement plant of the Tidewater Portland Cement Co.

The attendance at the meeting was excellent, and general satisfaction expressed at the results accomplished.

J. C. OLSEN,
Secretary

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