tract nothing from the general excellence of the book, of which it is, perhaps, sufficient to say that it is in keeping with what would be expected from one of Professor Sherman's high rank as a teacher and investigator in this field of analytical chemistry.

The mechanical part of the work is well done, the book being of convenient size, well printed and bound. Personal experience with the index for several months has shown that for the practical purposes of an index it leaves much to be desired. A. G. WOODMAN.

SCIENTIFIC JOURNALS AND ARTICLES.

THE AMERICAN JOURNAL OF ANATOMY.

AT a meeting of the board of editors of the *American Journal of Anatomy* on April 18, 1906, Dr. Lewellys F. Barker resigned, and Dr. Charles R. Bardeen, professor of anatomy at the University of Wisconsin, and Dr. Henry H. Donaldson, professor of neurology of the Wistar Institute, were elected editors.

The contents of Vol. V., No. 2, May, 1906, are as follows:

ROSS G. HARRISON: 'Further Experiments on the Development of Peripheral Nerves.' With five figures.

ALBERT C. EYCLESHYMER and J. M. WILSON: 'The Gastrulation and Embryo Formation in Amia Calva.' With four double plates.

C. F. W. MCCLURE: 'A Contribution to the Anatomy and Development of the Venous System of Didelphys Marsupialis (L.)—Part II., Development.' With twenty-seven text figures and five double plates.

Proceedings of the Association of American Anatomists, Nineteenth Session, August 6–10, 1905, and Twentieth Session, December 27–29, 1905.

List of Members of the Association of Anatomists.

SOCIETIES AND ACADEMIES.

SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.

THE sixteenth meeting of the Society for Experimental Biology and Medicine was held in the new building of the Rockefeller Institute for Medical Research on Wednesday, April 18. The president, Simon Flexner, was in the chair.

Members Present.—Atkinson, Auer, Beebe, Buxton, Calkins, Dunham, Emerson, Field, Flexner, Foster, Gibson, Gies, Herter, Lee, Levene, Lusk, Meltzer, Meyer, Murlin, Noguchi, Opie, Parker,[1] Pratt,[1] Salant, Schwyzer, Sherman, Terry, Wolf, Wood.

Members Elected.—Charles R. Bardeen, G. H. A. Clowes, N. B. Foster, J. H. Kastle, Ralph S. Lillie, D. T. MacDougal, J. J. R. Macleod, Robert M. Yerkes.

Abstracts of Reports of Original Investigations.[2]

On the Digestion of Gelatin: P. A. LEVENE and W. A. BEATTY.

The authors used phosphotungstic acid to effect separation of the amino-acids produced from proteins by hydrolysis. Tryptic digestion of gelatin resulted in the formation of a substance apparently identical with prolinglycyl anhydrid ($C_7H_{10}N_2O_2$).

The Reactions of Amphioxus to Light: G. H. PARKER.

When strong light was thrown into a basin of sea-water containing many amphioxus, the whole assembly swam about in wild confusion. This has been taken to indicate that amphioxus is very sensitive to light. But when twenty individuals were illuminated singly only twelve responded. The wild confusion in the first experiment is due quite as much to tactile stimulation as to light. When a strong, well-circumscribed beam of light was thrown on the tail of amphioxus the animal almost always reacted by a slight forward spring. When the light was thrown on the middle of the body there was usually no reaction, though sometimes a backward movement. When the light was applied to the head end, there was always a backward spring. This sensitiveness was not lost or impaired by cut-

[1] Non-resident.

[2] The abstracts presented in this account of the proceedings have been greatly condensed from abstracts given to the secretary by the authors themselves. The latter abstracts of the communications may be found in current numbers of *The Journal of the American Medical Association*, *American Medicine* and the *New York Medical Journal*.

ting off the anterior end, including the so-called eye-spot. When cut into halves, amphioxus retained sensitiveness to light in the anterior half, but not in the posterior half, though the latter was normally reactive to stimulation from very weak acid. This indicates that though amphioxus is without a brain proper, the anterior portion of its medullary tube is related to the posterior portion somewhat as the brain and cord are in the higher vertebrates. The distribution of the sensitiveness of amphioxus to light corresponds to the distribution of the 'light' cells (Hesse) in its medullary tube and is probably not connected with the skin. Specimens of amphioxus tend to collect in the darker parts of an aquarium. They also swim away from a source of light. Amphioxus is, therefore, negatively photodynamic and negatively phototropic.

The Relation of Blood Platelets to Thrombus Formation: JOSEPH H. PRATT.

In frogs and rabbits experimental thrombi three to ten minutes old were studied. In the youngest thrombi there was agglutination of blood platelets or spindle-cells and agglutination of erythrocytes without evidence of fibrin formation. The fusing and distortion of the erythrocytes were marked. The erythrocytes were sometimes broken up into small granular masses which simulated blood plates. By the use of a sodium metaphosphate solution it was possible to distinguish the blood platelets from the degeneration products of the erythrocytes.

On the Conditions of Bacterial Activity in the Intestine in Cases of Advanced, Apparently Primary, Anemias: C. A. HERTER.

The author reported results of the coordinated studies of fifteen cases of apparently primary advanced anemias, in ten of which the blood picture was that of pernicious anemia. The studies related to the occurrence of phenol in the urine and in the feces; of indol in the feces and indican in the urine; of skatol in the feces; to the Ehrlich aldehyde reaction of the urine; to the Ehrlich aldehyde reaction of the feces; and to the hydrobilirubin reaction of Schmidt. In the case of indol, phenol and skatol, quantitative studies were made. The observations established the fact that in so-called primary pernicious and allied anemias the indications of excessive putrefactive decomposition are almost regularly pronounced. These changes are associated with definite and characteristic departures in the bacterial activity of the intestinal flora studied in fermentation tube experiments. A careful study of the microscopical fecal fields, of the sedimentary fields in fermentation tubes, of the anerobic plates from the sterilized feces, and of the results of a modification of Welch's incubation test for the gas-bacillus, indicates that in nearly every instance examined the peculiar Saccharobutyric type of bacterial decomposition here found is dependent upon *B. Welchii* (*B. aerogenes capsulatus*). Evidence is furthermore brought forward to show that this organism is a prominent and perhaps specific factor in advanced 'primary' anemia. The overgrowth of the gas-bacillus is associated with a partial disappearance of *B. coli.* During convalescence the gas-bacillus recedes numerically and *B. coli* resumes a dominant position.

Absorption of Typhoid Bacilli from the Peritoneal Cavity: B. H. BUXTON and J. C. TORREY.

Shortly after injection of typhoid bacilli into the peritoneal cavity of a rabbit the organs in most experiments are found to be invaded by the bacilli, more particularly the liver and spleen, in which there may be enormous numbers. By means of injection of lamp black, the peritoneal path for this rapid rush to the organs is shown to be by way of the anterior mediastinal lymphatic trunks. Even in five minutes after injection the trunks and the anterior mediastinal lymph nodes are markedly blackened.

On plating out the lymph nodes after injection of typhoid bacilli, they are often found to contain many millions of bacilli, and as a general rule if there are many bacilli in the lymph nodes there are also many in the organs.

On the Dicrotic Elevation at Different Points of the Arterial Tree.—A preliminary communication: Percy M. Dawson. (Presented by J. R. Murlin.)

The author has observed considerable local variation of the dicrotic elevation in many arteries in dogs. The pulse wave was studied by means of the Hürthle manometer. The observations were made on numerous arteries. A satisfactory explanation of the local variations observed will be sought through further experimentation.

The Influence of Subcutaneous Injections of Dextrose upon Nitrogenous Metabolism: Frank P. Underhill and Oliver E. Closson.

In experiments with glucose similar to those described by Scott the authors confirmed his observation that nitrogenous metabolism is increased and a greater excretion of oxalic acid results. In no case, however, was there observed a significant change in the proportion of the various forms of excreted nitrogen. The increased proportion of ammonia in the urines of Scott's dogs is attributed by the authors to the fact that most of the animals were suffering from severe cystitis due to catheterization. The authors conclude that subcutaneous injections of large quantities of glucose do not give any evidence of toxic action and they suggest that such injections of glucose may be useful as a method of parenteral feeding, since quantities equal to seven grams per kilo may be thus administered to dogs and rabbits without elimination in the urines of more than mere traces of the sugar.

Diffusion into Colloids and a Biological Method for Testing the Rate of Diffusion: Simon Flexner and Hideyo Noguchi.

The experiments summarized in this report were made with hemolytic substances suspended in isotonic saline solution and in agar-agar and gelatine jelly. The rate of diffusion could be measured by the depth and degree of hemolysis produced in a jelly containing in suspension susceptible red blood corpuscles. The experiments were varied: the red corpuscles were suspended in the warm jelly, which was permitted to congeal. The blood jelly was overlaid with the hemolyzing agent dissolved in saline solution or this agent was also contained within a solidified jelly. The hemolyzer was made to diffuse both downwards and upwards, according as the blood- or hemolyzer-jelly was above or below. Moreover, the hemolyzer was placed in the jelly and made to diffuse upwards into a watery solution, the amount of diffusion being measured by the degree of hemolysis caused by the fluid removed at given intervals. Two factors were always considered: extent or degree of hemolysis, and time.

Acids, alkalies, salts, glucosides and toxine diffuse into 0.9-per-cent. watery NaCl solution more quickly than into a similar solution containing agar-agar and gelatine. This reduction in rapidity of diffusion increases with increase in concentration of the jelly. Ten-per-cent. gelatine exerts a greater inhibition than 2-per-cent. agar-agar, and 25-per-cent. gelatine exerts greater restraint than 10-per-cent. gelatine. The ratio between the rate of diffusion and the concentration of the colloidal suspension is, in the case of gelatine, nearly inversely proportional to the square root of the concentration of the colloid. In the case of agar-agar, with which the possibility of varying the concentration is far less than with gelatine, the inhibitory influence is less marked and does not conform to this rule. Voigtländer's results are applicable to the special case of agar-agar jelly.

The influence of colloids upon the injurious effects produced by bile salts upon the pancreas is due, apparently, to a modification by reduction of the diffusibility of the bile salts, which result diminishes the concentration of the salts brought in contact with the pancreatic tissues in a unit of time.

William J. Gies,
Secretary.

THE AMERICAN CHEMICAL SOCIETY.
NEW YORK SECTION.

The seventh regular meeting of the season was held at the Chemists' Club on Friday, April 6, at 8:40 P.M., Chairman Dr. F. D. Dodge presiding. The following papers were presented:

On a 3-Amino Quinazoline and the Corresponding 3, 3'-Diquinazolyl: M. T. BOGERT and H. A. SEIL.

By condensing 6-nitro acetanthranil with hydrazine hydrate, the authors obtained an amino quinazoline and a diquinazolyl. The same diquinazolyl was prepared by condensing the amino quinazoline with another molecule of the anthranil. The properties of these compounds and of several of their derivatives were described.

The Determination of Rosin in Shellac—second paper: A. C. LANGMUIR.

In the author's first paper published in the *Journal of the Soc. Chem. Ind.*, January 16, 1905, the iodine absorption of shellac under certain specified conditions was taken at 18 per cent. and that of rosin at 228 per cent. A large number of tests during the past year on a great variety of shellacs and rosins confirm the values taken at that time. The Hanns solution may be used in place of the Wiji solution, and the same values hold good. The Hubb solution still advocated by Parry should be abandoned, as its use in the determination of rosin has all the inaccuracies established in the case of fat analysis and to a greater extent.

An Electrical Resistance Furnace for the Measurement of Higher Temperatures with the Optical Pyrometer: ALEXANDER LAMPEN.

The substance under investigation is introduced into a small graphite capsule, which is put in the end of a graphite sliding tube, and this is slipped into a fixed horizontal tube heated in a resistance furnace. The pyrometer is sighted on the capsule through the sliding tube. A rough regulation of the temperature is made by varying the current and the fine regulation by moving the capsule to a hotter or cooler zone of the tube. Temperatures up to 2500° C. can be obtained. Besides melting points of several refractory materials, the following temperatures were determined. Reaction point between C. and SiO_2 about 1615° C. Crystallization temperature of C. Si—between 1900° and 2000° C. Decomposition point of C. Si—between 2200° and 2240° C. Reaction point between C. and CaO about 1725° C.

The Measurement of Temperature in the Formation of Carborundum: S. A. TUCKER and ALEXANDER LAMPEN.

The purpose of this investigation was to determine the temperature for the formation of carborundum, and its decomposition into graphite. The furnace was built on the general plan of a large scale carborundum furnace, and was provided with a graphite tube passing transversely through the core and charge. This tube contained a graphite plug which could be pushed to any desired position in the tube. On running the furnace, the plug is raised to a certain temperature depending upon its position in the tube. For different positions this temperature was determined by an optical pyrometer. After taking down the furnace, measurements were made of the layers of carborundum, graphite, siloxicon, and thus gave the temperature at which these changes take place. It was found as an average that the temperature for the formation of carborundum was 1950° C., and for its discomposition in graphite and silicon 2220° C.

F. H. POUGH,
Secretary.

DISCUSSION AND CORRESPONDENCE.

THE ORIGIN OF THE SMALL SAND MOUNDS IN THE GULF COAST COUNTRY.

TO THE EDITOR OF SCIENCE: Allow me to express my assent to Professor R. T. Hill's rejection of some theories recently advanced to explain the origin of the small sand mounds in the gulf coast country. No one who is familiar with the appearance of the mounds formed by uprooted trees would for moment regard the sand mounds in the south as having been produced by such a process. Nor do I believe they can be the product of human industry.

Hill's notes on their geographic occurrence are interesting. Allow me to add some data, which I secured relative to these mounds three years ago, near the little village of Olivia in Calhoun County, Texas. I measured the