NaCN per ton, dry weight. This indicates that rain and melting snow leach the highly soluble cyanide from the pile and, of necessity, carry it into the creek.

Controlled experiments showed that locally raised eastern brook trout died in forty-seven minutes in a dilution of the mill effluent equivalent to 2.0 p.p.m. of NaCN. Lack of time prevented experiments with more dilute solutions. The menace of accumulating waste piles of this nature is worthy of more consideration for a large quantity may accumulate to be leached by melting snow and rain.

RICHARD T. SMITH
STATE DEPARTMENT OF FISHERIES,
SEATTLE, WASH.

SOCIETIES AND ACADEMIES

THE ALABAMA ACADEMY OF SCIENCE

IN spite of storms, floods and blocked highways, the fifteenth annual meeting of the Alabama Academy of Science held at State Teachers College, Troy, on April 8 and 9, under the presidency of Roger W. Allen, Alabama Polytechnic Institute, Auburn, proved one of the most successful in the history of the academy. Over sixty members and as many visitors registered with an accompanying meeting of over one hundred participating in the Junior Academy. In addition to the scientific program, which was given in four sections on Friday afternoon and Saturday morning, and the business sessions, entertainment features were varied. These included a luncheon, social and banquet, followed by sound movies at Shackelford Hall, a complimentary barbecue by the college and various field trips, including the geological and botanical one to Pocosin, conducted by Walter B. Jones and Roland M. Harper, of the Geological Survey. All business and scientific sessions were held at Bibb Graves Hall. C. M. Farmer, head of the biology department of the State Teachers College, Troy, was chairman of local arrangements with James Holt Starling, Troy High School, serving for the juniors.

The main feature of the banquet was the presidential address entitled "Anomalous Alabama." The guests were welcomed by C. B. Smith, president of the college, and the response given by R. S. Poor, of Birmingham-Southern College, who substituted for J. L. Brakefield, of Howard College.

The academy award from the American Association for the Advancement of Science, which has been held for the past three years by Septima Smith, of the department of zoology of the University of Alabama, was given to J. Gordon Carlson, of the same department. Montgomery was selected as the meeting place for 1939, with Huntingdon College as host college. The treasurer, B. F. Clark, reported thirty-six new members added during the year.

Dr. George D. Palmer, associate professor of chemistry, University of Alabama, was chosen as president-elect of the academy and was also selected as vice-president for next year. The president for 1938–1939 is P. H. Yancey, of Spring Hill College, Mobile (elect of last year). Other officers of the academy include: Septima Smith, *secretary* (reelected last year for three years); John Xan, Howard College, *treasurer;* J. H. Coulliette, Birmingham-Southern College, *councilor to the American Association for the Advancement of Science* and the chairmen of the sections, who serve as vice-presidents of the academy, namely: E. V. Smith, of Alabama Polytechnic Institute, Auburn, Section I, Biology and Medical Sciences; G. D. Palmer, of the school of chemistry of the University of Alabama, Section II, Chemistry, Physics and Mathematics; Miss Winnie McGlamery, of the Geological Survey of Alabama, Section III, Geology, Anthropology and Archeology; and J. F. Glazner, of State Teachers College, Jacksonville, Section IV, Industry, Economics and Geography. Dr. James L. Kassner, of the school of chemistry, University of Alabama, was retained as acting permanent counselor to the Junior Academy and N. R. Brundrett, of Phillips High School, as counselor.

Officers who served the academy for this year are: Roger W. Allen, *President;* B. F. Clark, Birmingham-Southern College, *Treasurer;* P. D. Bales, Howard College, *Councilor to the American Association for the Advancement of Science, and the vice-presidents;* Section chairmen: J. Gordon Carlson, of the department of zoology, University of Alabama, Section I; G. W. Hargreaves, of Alabama Polytechnic Institute, Auburn, Section II; Peter A. Brannon, of the Department of Archives and History, Montgomery, Section III; and John Xan, Howard College, Section IV. Secretaries who served the respective sections included: W. F. Abercrombie, Howard College; G. D. Palmer, University; James M. White, Sr., Montgomery, and V. A. Scalce, Birmingham.

SEPTIMA SMITH,
Secretary

THE SOUTH CAROLINA ACADEMY OF SCIENCE

THE fifteenth annual meeting of the South Carolina Academy of Science was held at the Charleston Museum and at The Citadel, Charleston, South Carolina, in joint session with the South Carolina Section of the American Chemical Society and the South Carolina Section of the Southern Society for Philosophy

and Psychology, on April 9, 1938. More than two hundred members attended.

The morning session was devoted to papers of a more general interest, papers in the Jefferson Medal competition, and the address, "Lightning and Lightning Protection," of the retiring president, Professor A. C. Carson, of the University of South Carolina. The afternoon session was divided into sections of Biology, Chemistry, Mathematics, Philosophy-Psychology, Geology and Physics.

At the business session the following officers for 1938–39 were elected:

President: Dr. G. G. Naudain, Winthrop College, Rock Hill, S. C.

Vice-president: E. B. Chamberlain, Charleston Museum, Charleston, S. C.

Secretary-Treasurer: Dr. G. N. Collings, Clemson College, Clemson, S. C.

Curator: Dr. J. E. Copenhaver, University of South Carolina, Columbia, S. C.

Editor: To be appointed.

Executive Committee: Dr. J. E. Mills, Sonoco Products Company; Professor A. C. Carson, University of South Carolina; Dr. C. D. Riddle, Furman University; Dr. R. M. Byrd, The Citadel; Professor J. J. Petty, University of South Carolina.

The Jefferson Medal for the outstanding paper was awarded to Dr. H. D. Bruner, of the Medical College of the State of South Carolina, for a paper entitled "The Blood Picture of Rats from Birth to Twenty-Four Days of Age." The 1938 Research Fund was granted to Dr. Jessie Reed Cockrill, of the Medical College of the State of South Carolina.

The next meeting will be held in the spring of 1939 in Columbia, South Carolina.

F. W. KINARD,
Retiring Secretary

MINNESOTA ACADEMY OF SCIENCE

THE sixth annual meeting of the reorganized Minnesota Academy of Science was held at St. John's University, Collegeville, Minnesota, on Saturday, April 23. More than 200 people attended the programs of the various sections. Five papers were read to the entire group in the morning. In the afternoon 25 papers were presented in the Biological and Physical Sciences and Science Education sections. For the first time, a Junior Academy program was given. Representatives from four high school science clubs gave papers. Several club exhibits were arranged by the Junior group. In the evening, at an open meeting Dr. William Carpenter MacCarty, of the Mayo Foundation, gave an address entitled, "Individualism and Collectivism in Nature." At the business session nearly 200 members were taken into the academy, making a total membership of well over 600.

American Association for the Advancement of Science Research grants of $55 were made to Dr. Alfred M. Elliott, of Bemidji Teachers College, and to Dr. John W. Moore, of the University of Minnesota.

Officers for 1938–39 are: *President,* L. M. Gould, Carleton College; *Vice-president,* R. B. Harvey, University of Minnesota; *Secretary-Treasurer,* H. K. Wilson, University of Minnesota. The councilors are: E. M. Freeman, University of Minnesota; E. T. Tufte, St. Olaf College; H. E. Essex, Mayo Foundation; and L. H. Powell, St. Paul Institute. The officers of the Junior Academy are: *President,* M. H. Kuhlman, Stillwater, and *Secretary-Treasurer,* Lewis L. Barrett, of Edison High School, Minneapolis.

The 1939 meeting will be held on Saturday, April 22, at Macalester College, St. Paul.

H. K. WILSON,
Secretary

SPECIAL ARTICLES

THE PERFUSION OF WHOLE ORGANS IN THE LINDBERGH APPARATUS WITH FLUIDS CONTAINING HEMOCYANIN AS RESPIRATORY PIGMENT[1]

ORGANS perfused in the Lindbergh apparatus[2] are ordinarily supplied only with dissolved oxygen. The use of red blood cells or hemolyzed blood leads to the formation of methemoglobin after six to eight hours, making perfusion for several days impossible. Attempts to prevent the formation of methemoglobin by adding glutathione or ascorbic acid were unsuccessful.

In order to provide more oxygen for the organs it was considered preferable to replace hemoglobin by another respiratory pigment, hemocyanin, rather than to increase the dissolved oxygen by increasing the oxygen tension. Hemocyanin was collected from *Limulus polyphemus* (about 100 cc of blood per crab). The blood was centrifuged to remove mucus and then dialyzed in Cellophane against running tap water until the conductivity showed that most of the electrolytes had dialyzed out. After removal of the proteins precipitated by the dialysis, crude hemocyanin was precipitated by adding N/25 HCl, until the pH was about 6.4, and the solution was again centrifuged. The supernatant fluid was removed and the precipitate dissolved in 50 cc of cat plasma[3] which had been adjusted to a pH of 8.4. This mixture was then dialyzed against distilled water. The resulting solution, containing 4.5 per cent. hemocyanin, was made

[1] From the Department of Surgery of the College of Physicians and Surgeons, Columbia University, and the Department of Surgery of the Presbyterian Hospital, New York City.

[2] A. Carrel and C. A. Lindbergh, SCIENCE, 81: 621, 1935.

[3] Cat organs were used for the perfusion.