although within a few minutes they may assume a nearly rounded or quite rounded form. Accordingly, we at first thought that our consistent results might be interpreted in terms of the Hertwig hypothesis that the cleavage spindle tends to orient itself with its long axis parallel to the long axis of the egg (or fragment). We then devised means of testing this hypothesis. Matured but unfertilized ova were siphoned by capillarity through a thoroughly clean glass capillary of size precisely adequate to induce an elongation of the ova about one and one half times their normal diameter. These elongated ova, upon passing out of the capillary into fresh sea water, retained quite conspicuously a longer axis, even though their resilience tended to bring back their former roundness.

With rare exceptions several dozen ova thus elongated readily formed, upon insemination, clear, full-sized fertilization membranes. The first and second cleavages which ensued without noticeable delay occurred in planes intersecting near the polar bodies, precisely as in the controls, irrespective of the induced longer axis.

We further demonstrated that fragments which were allowed to round up before insemination cleaved likewise at right angles to the plane of section.

In about fifty-three recorded cases of merotomized ova of the two sea urchins *Strongylocentrotus purpuratus* and *S. franciscanus,* we have more recently obtained results which agree with those recorded above for the ova of the starfish *P. miniata.*

Our results, therefore, tend to substantiate the findings of Taylor and Tennent (1924) in similar experiments on the ova of *Lytechinus variegatus.*

Our experiments go further, however, in showing that the planes of the first two cleavages are at right angles to the cut surface of the fragments, whether the plane of section passes through the poles, through the equator or *through any other plane of the ovum.* Furthermore, this rule holds for the two fragments of unequal size as well as for those of equal size.

We have further evidence, which is as yet hardly complete, that supports the conclusions of the above investigators that "the original polarity of the egg does not necessarily persist in the fragment" (Taylor and Tennent, 1924). Of the number of clear-cut cases, including the ova of both *Patiria miniata* and *Strongylocentrotus purpuratus,* invagination of the blastulae arising from fertilized fragments *occurred on the cut surface.* The number of such cases is twenty-four. We have thus far failed to find any exception to this tendency.

C. V. TAYLOR
D. M. WHITAKER

HOPKINS MARINE STATION

THE ANNIVERSARY MEETING OF THE AMERICAN CHEMICAL SOCIETY

THE fiftieth anniversary meeting of the American Chemical Society, being its seventy-second general meeting, was held at Philadelphia, Pennsylvania, from Monday, September 6, to Friday, September 10, inclusive.

Preceding the meeting in Philadelphia, a special pilgrimage was made to the grave of Joseph Priestley at Northumberland, Pennsylvania, where exercises were held, as reported in SCIENCE. The council meeting was held on the morning of the sixth; general meetings on the afternoon of Monday, September 6, and on the afternoon of Wednesday, September 8. Regular divisional meetings were held all day Tuesday, Thursday and Friday and on Wednesday morning. At the general meeting on Monday afternoon, September 6, the following addresses were given: "The Development of Chemical Industry in Italy," by Prince P. Ginori Conti; "The Dyestuff Industry, Forerunner of What?" by Irénée Du Pont; "La Chimie Modern et Marcelin Bertholet," by Paul Sabatier.

On Wednesday afternoon, September 8, diplomas of honorary membership were presented in person to Ernst Cohen, James C. Irvine, W. Lash Miller, Ira Remsen, Theodore W. Richards, Paul Sabatier, Edgar Fahs Smith and Frederic Swarts. A certificate of honorary membership for Joji Sakurai was presented to his proxy, Professor Koichi Matsubara, and a certificate of honorary membership for Charles Moureu was presented through his proxy, Paul Sabatier. Professor Bohuslav Brauner, Professor Giuseppe Bruni, Professor Frederick G. Donnan and Professor Ame Pictet, not being able to be present and having designated no official proxy, their certificates were forwarded to them through other channels.

On the afternoon of Wednesday, September 8, the following addresses were given: "Flames of Atomic Hydrogen," by Irving Langmuir; "Chemical Reaction of Atomic Hydrogen," by Hugh S. Taylor; "Caricature in Science," by Ernst Cohen. After the addresses, a special cash award was presented to Paul Sabatier in the name of the Procter and Gamble Company of Cincinnati in appreciation of his important scientific researches, especially in contact catalysis, which have been so fruitful in making possible successful industrial developments in the soap and fat industries.

On Tuesday evening, September 7, President Norris addressed the society on the subject "A Look Ahead." This address will be printed in the October issue of *Industrial and Engineering Chemistry.* On the same evening the Priestley Medal was awarded to Edgar

Fahs Smith, who then addressed the society on the subject "Joseph Priestley." A happy feature of the occasion was the renewal to Dr. Edgar Fahs Smith, through Professor W. T. Taggart, on account of the University of Göttingen, of his doctor of philosophy degree taken fifty years ago. A renewed diploma, with proper ceremony, was conferred upon him.

The registration showed 2,249 members and guests present. The society was welcomed by W. T. Taggart, chairman of the local executive committee; by a representative of Mayor W. Freeland Kendrick, of Philadelphia, and by Dean Frazier, of the Towne Scientific School of the University of Pennsylvania. A response by President Norris followed. Mayor Kendrick gave his greeting to the society at the time of the banquet.

On Monday evening a reception and dance was largely attended and thoroughly enjoyed at the Elks Club. On Wednesday evening a banquet in honor of the founder members of the society was held in the Bellevue-Stratford Ball Room with 588 members and guests present. S. A. Goldschmidt, J. B. F. Herreshoff, Charles E. Munroe and H. E. Niese were the founder members present. The only other founder members living, Dr. Wm. H. Nichols and Adolph Kuttroff, to the regret of all, were unable to be present.

All divisions and sections of chemistry met and a large and valuable series of papers were given, titles of which may be found in the August 20 issue of the news edition, and most of which will be printed as soon as possible in the society's journals. The following symposia were held: "International Chemical Education," by the Division of Chemical Education; "The Progress of the Dye Industry in the United States during the Past Decade," by the Division of Dye Chemistry; "The Processing of Coal," by the Division of Gas and Fuel Chemistry; "Future Trends in Industrial and Engineering Chemistry," by the Division of Industrial and Engineering Chemistry; "Therapeutic Agents from Animal Sources," by the Division of the Chemistry of Medicinal Products; "Particle Size, Distribution and its Function in Paints and Enamels," by the Section of Paint and Varnish Chemistry; "Raw Rubber," by the Division of Rubber Chemistry; "Refining of Sugars," by the Division of Sugar Chemistry.

Although distinct from the program of the American Chemical Society, the golden jubilee meeting was rendered particularly happy by the conferring of four honorary degrees on Thursday afternoon by the University of Pennsylvania upon Prince Ginori Conti, Sir James C. Irvine, Professor Ernst Cohen and Professor Paul Sabatier.

Numerous group dinners and banquets were held at Philadelphia which were highly successful. More detail will be found in *Industrial and Engineering Chemistry*. The banquet of the Rubber Division and the luncheon of the Paint and Varnish Section with important executives of the two industries are especially worthy of comment and note. They were both highly successful functions.

On Friday afternoon an excursion was tendered by the Philadelphia section down the Delaware River, which was attended by some 500 members and guests.

The Divisions elected officers as follows:

AGRICULTURAL AND FOOD CHEMISTRY: *Chairman,* E. F. Kohman; *Vice-chairman,* F. C. Blanck; *Secretary-Treasurer,* C. S. Brinton; *Executive Committee,* Ruth Buchanan, G. S. Fraps.

BIOLOGICAL CHEMISTRY: *Secretary-Treasurer,* Paul E. Howe; *Executive Committee,* A. D. Holmes, Victor LaMer, J. M. Looney, A. J. Quick, M. X. Sullivan.

CELLULOSE CHEMISTRY: *Chairman,* Bjarne Johnsen; *Vice-chairman,* L. E. Wise; *Secretary-Treasurer,* E. C. Sherrard; *Executive Committee,* the officers and H. LeB. Gray and L. F. Hawley.

CHEMICAL EDUCATION: *Chairman,* B. S. Hopkins; *Vice-chairman,* Geo. W. Sears; *Secretary,* Ross A. Baker; *Treasurer,* E. M. Billings; *Executive Committee,* W. D. Engle, M. V. McGill, W. Segerblom.

DYE CHEMISTRY: *Chairman,* M. L. Crossley; *Vice-chairman,* E. K. Bolton; *Secretary-Treasurer,* H. T. Herrick; *Executive Committee,* the officers and C. G. Derick and C. H. Herty.

FERTILIZER CHEMISTRY: *Chairman,* F. B. Carpenter; *Secretary,* H. C. Moore.

GAS AND FUEL CHEMISTRY: *Chairman,* G. G. Brown; *Vice-chairman,* S. R. Church; *Secretary-Treasurer,* O. O. Malleis; *Executive Committee,* A. C. Fieldner, H. C. Porter.

INDUSTRIAL AND ENGINEERING CHEMISTRY: *Chairman,* W. H. McAdams; *Vice-chairman,* Robert J. McKay; *Secretary-Treasurer,* E. M. Billings; *Executive Committee,* W. K. Benson, C. E. Coates, A. C. Fieldner, W. A. Peters, Jr., Robert E. Wilson.

LEATHER AND GELATIN CHEMISTRY: *Chairman,* John Arthur Wilson; *Vice-chairman,* Joseph H. Cohen; *Secretary-Treasurer,* Arthur W. Thomas; *Executive Committee,* W. H. Irwin, S. E. Sheppard.

MEDICINAL PRODUCTS, CHEMISTRY OF: *Chairman,* H. A. Shonle; *Secretary,* A. W. Dox; *Executive Committee,* Oliver Kamm, W. F. Rudd, E. H. Volwiler.

ORGANIC CHEMISTRY: *Chairman,* F. B. Dains; *Secretary,* Frank C. Whitmore.

PETROLEUM CHEMISTRY: *Chairman,* R. R. Matthews; *Vice-chairman,* W. F. Faragher; *Secretary-Treasurer,* G. A. Burrell; *Executive Committee,* W. H. Johns, C. A. Wagner.

RUBBER CHEMISTRY: *Chairman,* R. P. Dinsmore; *Vice-chairman,* H. L. Fisher; *Secretary-Treasurer,* A. H. Smith; *Executive Committee,* C. C. Davis, Frank Kovacs, M. A. Shepard, A. A. Somerville, Ira Williams.

WATER, SEWAGE AND SANITATION CHEMISTRY: *Chairman,* W. D. Collins; *Secretary-Treasurer,* W. D. Hatfield; *Executive Committee,* R. C. Bardwell, Edward Bartow.