to the very latest possible moment on account of the keen interest aroused. It is quite noteworthy that the mantle of secrecy which has enveloped so many of the chemical industries and industrial chemists in the past appears to be falling away under this enthusiasm and both the industries and the industrial chemists themselves find that they gain more than they lose thereby. In this connection it might be added that a considerable number of chemical corporations are joining the society as such and are heartily entering into the spirit of progress with which the society is so thoroughly imbued.

The Section of Pharmaceutical Chemistry, which held its first meeting in Baltimore, was surprisingly well attended at Detroit with representative pharmaceutical chemists from various sections of the country. The chief matter of importance before the section was the question of the advisability of forming a Division of Pharmaceutical Chemistry. After the matter was discussed by almost every one present and many letters were read from pharmaceutical chemists, it was unanimously voted to request the council to establish such a division and a strong organization was formed with Professor A. B. Stevens, of Ann Arbor, as chairman; B. L. Murray, secretary; J. P. Remington, Edw. Kremers and J. M. Francis, executive committee.

The social features of the meeting were many. A complimentary smoker was given by the Society of Detroit Chemists to the visiting chemists on Tuesday evening and a banquet on Thursday night. On Wednesday afternoon the chemists were the guests of Parke, Davis & Co., and visited the works of this well-known firm, were entertained there at dinner and were given an evening boat ride on the Detroit River and Lake St. Claire before returning. Thursday was spent in Ann Arbor as the guests of the regents of the University of Michigan and three papers of general interest were there presented in general session. The rest of the day was turned over to the Section of Chemical Education, where papers dealing with methods of instruction were read. During the day the members visited the new laboratories of the University of Michigan and were entertained at luncheon through the courtesy of the regents.

Many manufacturing works and chemical establishments were opened to the visitors in Detroit, among which may perhaps be especially mentioned Acme White Lead and Color Works, Detroit Salt Company, Hiram Walker & Sons, Hoskins Manufacturing Company and the various automobile factories which have so greatly added to the industrial life of Detroit.

A steadily increasing number of members of the society are making it a point to attend the meetings and it is interesting to note that more and more chemical corporations are appreciating the value of these meetings to their chemists and are insisting upon their attendance, in most cases bearing all the expenses of the trip.

Charles L. Parsons,
Secretary

SOCIETIES AND ACADEMIES

The North Carolina Academy of Science

The eighth annual meeting of the North Carolina Academy of Science was held at Trinity College, Durham, N. C., on Friday and Saturday, April 30 and May 1, 1909, with twenty-seven members in attendance. Friday afternoon and the whole of Saturday were devoted to the reading of papers. This meeting was the most successful in the history of the academy, both in the matter of attendance (55 per cent. of the members being present) and with regard to the number of papers read.

On Friday night Dean W. P. Few welcomed the academy to Trinity College, and retiring president T. Gilbert Pearson responded on behalf of the academy. Then Mr. Pearson, who is secretary of the National Association of Audubon Societies, delivered a lecture, illustrated by stereopticon slides made from photographs taken by himself, on "The Work of the Audubon Society in Preserving Rare Forms of Bird Life." Following this a reception was tendered the members of the academy by the faculty of Trinity College.

In the business meeting on Saturday morning, the report of the secretary-treasurer showed that the academy was in excellent condition both from the standpoint of finance and of activity and enthusiasm of its membership. Six new members were elected.

The officers elected for the ensuing year are:

President—W. C. Coker, University of North Carolina, Chapel Hill, N. C.

Vice-President—W. H. Pegram, Trinity College, Durham, N. C.

Secretary-Treasurer—E. W. Gudger, State Normal College, Greensboro, N. C.

Executive Committee—H. H. Brimley, State Museum, Raleigh, N. C.; C. W. Edwards, Trinity College, Durham, N. C.; W. S. Rankin, Wake Forest College, Wake Forest, N. C.

The following papers were presented:

The Chemistry of Scrape Formation: CHAS. H. HERTY, University of North Carolina, Chapel Hill, N. C.

"Scrape" is the hardened resinous mass which forms gradually on the scarified surface of certain pines during the turpentine season, March to November. Determination of the unsaponifiable matter in various oleo-resins shows that the amount of this material is relatively high in trees which do not form scrape (*Pinus heterophylla*) and low and variable in scrape-forming trees (*Pinus palustris*). The explanation is offered that the amount of scrape formed is approximately inversely proportional to the per cent. of unsaponifiable matter present, this being a honey-like, non-crystallizable substance which acts as a retardant of crystallization in the oleo-resin after it exudes from the tree. Confirmation of this idea is furnished by analyses of the oleo-resins of Loblolly pine (*P. tæda*) and old field pine (*P. echinata*).

The Great Comet Next Spring: JOHN F. LANNEAU, Wake Forest College, Wake Forest, N. C.

A Study of Varieties: W. N. HUTT, Department of Agriculture, Raleigh, N. C.

Plants of economic value being subject to domestication usually give rise to numerous varieties.

Horticultural plants afford better material for study than agricultural, because the latter are usually treated collectively while the former are necessarily treated as individuals.

Varieties of a century ago as listed by Wm. Coxe, of Burlington, N. J., in 1818 as compared with modern varieties.

	No. Listed by Coxe.	Listed Now.
Apples	133	2,138
Pears	65	2,567
Peaches	38	449
Plums	18	522

Of the 133 apples listed by Coxe 43 or 32 per cent. of them are of foreign origin. Now exclusive of recent Russian importation but four are found in present variety lists. Variety lists are becoming more and more native American.

Pear varieties are largely foreign, but most useful varieties for American conditions are natives, *e. g.*, Seckel, Keifer.

Of early varieties of apples as listed by Coxe but nine are found in lists of to-day. Of 2,138 varieties of apples in modern lists only 85 are the result of seed planting and selection. All remainder are chance seedlings. The life of a chance seedling is a good example of the "fortuitous law of chance." One may survive, millions are lost. Reasons for varieties not "coming true." Reasons for "running out" of varieties.

The history of the corn is an example of variation. The tomato is in a state of evolution due to high feeding under domestication.

The impossibility of obtaining ideal varieties is because our ideals advance with our knowledge and many of the characteristics we would want in an ideal variety are incompatible in one individual.

Ideals are well illustrated by opposites. We want: apples that will grow farther south, peaches that will grow farther north, pears that will not blight and that have no grit and sand in them, oranges that are not bitter and pithy, quinces that are not wooden, grapes without seeds, berries that are not seedy, and the small boy wants the stomach-acheless green apple. In short, we want the rainbow, but as we advance it ever recedes.

Social Science: Report on the White House Conference on Care of Dependent Children: W. B. STREETER, Superintendent the North Carolina Children's Home Society, Greensboro, N. C.

Syllabi of Conference Resolutions

1. Home Care: Children of worthy parents or deserving mothers should, as a rule, be kept with their parents at home.

2. Preventive Work: Society should endeavor to eradicate causes of dependency like disease and to substitute compensation and insurance for relief.

3. Home Finding: Homeless and neglected children, if normal, should be cared for in families, when practicable.

4. Cottage System: Institutions should be on the cottage plan with small units, as far as possible.

5. Incorporation: Agencies caring for dependent children should be incorporated, on approval of a suitable state board.

6. State Inspection: The state should inspect the work of all agencies which care for dependent children.

7. Inspection of Educational Work: Educational work of institutions and agencies caring for dependent children should be supervised by state educational authorities.

8. Facts and Records: Complete histories of dependent children and their parents should be recorded for guidance of child-caring agencies.

9. Physical Care: Every needy child should re-

ceive the best medical and surgical attention, and be instructed in health and hygiene.

10. Cooperation: Local child-caring agencies should cooperate and establish joint bureaus of information.

11. Undesirable Legislation: Prohibitive legislation against transfer of dependent children between states should be repealed.

12. Permanent Organization: A permanent organization for work along the lines of these resolutions is desirable.

13. Federal Children's Bureau: Establishment of a federal children's bureau is desirable, and enactment of pending bill is earnestly recommended.

The Planet Mars: JOHN F. LANNEAU, Wake Forest College, Wake Forest, N. C.

The Photographic Equipment of a Biological Laboratory and Some Micro-photographs Useful in Teaching: H. V. WILSON, University of North Carolina, Chapel Hill, N. C.

The photographic equipment of the new biological laboratory of the University of North Carolina was described. For life-size photographs or reductions a Bausch and Lomb Tessar lens used in a Century View camera mounted on a Folmer and Schwing tilting laboratory stand, has proved useful. For low magnifications the Zeiss microplanars 4 and 5 held in a Century View camera or in a Zeiss horizontal-and-vertical camera are used, with either reflected or transmitted light. In the latter case the object (an entire microscope slide, for instance, covered with growing organisms) is placed on a wooden box over a very large aperture through which the light is sent from a large plane mirror. For micro-photographs the Bausch and Lomb apparatus is used, either with a Thompson automatic electric lamp or with an acetylene lamp so made as to fit the same light box. For freshly mounted balsam or for glycerine slides the vertical microscope with prism-arrangement offers great advantage. For low magnifications of large fields the Zeiss microplanars 1–3 without ocular warrant the praise that has been given them. The microphotographs exhibited were of preparations illustrating points of general interest in the fields of vertebrate embryology and histology.

New Occurrences of Monazite in North Carolina: JOSEPH HYDE PRATT, State Geologist, Chapel Hill, N. C.

College Entrance Requirements in Science in North Carolina: C. W. EDWARDS, Trinity College, Durham, N. C.

An Alteration in the Direction of Growth that may be Induced in Sponges: H. V. WILSON, University of North Carolina, Chapel Hill, N. C.

One of the common sponges in Beaufort harbor, *Stylotella* sp., develops oscular lobes which grow up toward the surface of the water when the sponge rests on the bottom. If now such a sponge with a set of well-developed lobes be laid on its side in a large aquarium, growth takes place at many points on the lobes and at right angles to their long axis. This growth leads in the course of a week to the development of a new set of oscular lobes which again extend up towards the surface of the water but at right angles to the former lobes, whose terminal oscula have now disappeared.

The Wistar Institute Journals and the Need for their Support: H. V. WILSON.

It was pointed out that growth in the biological departments of colleges led to the need of suitable organs for publication, and that it was to the manifest interest of these departments to lend financial support to such journals as those of the Wistar Institute.

A New Species of Water Mold: W. C. COKER, University of North Carolina, Chapel Hill, N. C.

In October, 1908, a species of *Leptolegnia* was found at Chapel Hill, N. C., and has been kept growing in the laboratory since. It proves to be near the long lost *Leptolegnia caudata* DeBary of Germany, but seems to be distinct enough to be considered a new species.

Delayed Opening of Cones in Certain Species of Pines: W. C. COKER.

Cones of *Pinus tuberculata* from California and *Pinus serotina* from South Carolina were shown. Though mature for about eight years they had not opened. This tendency is developed to such an extent in *P. tuberculata* that the cones seem never to open until the wood on which they are borne is dead.

Exhibit of a Double-flowered Sarracenia and a New Variety of Elliott's Gentian: W. C. COKER.

Double flowers of *Sarracenia rubra* were shown from Hartsville, S. C. They have not before been known in the genus. Other specimens exhibited were a white variety of *Gentiana Elliottii* from Society Hill, S. C., and leaves and fruits of *Acer floridana* from Chapel Hill, N. C.

Some Notes on the Song Periods of Birds: C. S. BRIMLEY, Raleigh, N. C.

The writer commenced taking notes on what species of birds were in song at Raleigh, N. C., during the last week of June, 1908, and this paper gives the results obtained up to the end of April, 1909.

On the Number of Species of Birds that can be Observed in One Day at Raleigh, N. C.: C. S. BRIMLEY.

This paper enumerates the total number of species observed in each month at Raleigh, N. C., from November, 1908, to April, 1909, inclusive, and also gives the greatest number observed in any one day in each of the months, with a full list of the species observed on the best days in November, January, March and April.

Geology and the Lumber Market: COLLIER COBB, University of North Carolina, Chapel Hill, N. C.

Studies in Soil Bacteriology, III.: Concerning Methods for Determination of Nitrifying and Ammonifying Powers: F. L. STEVENS and W. A. WITHERS, assisted by J. C. TEMPLE, W. A. SYME, J. K. PLUMMER and P. L. GAINEY, North Carolina Experiment Station, Raleigh, N. C.

Observations on Bird Life of Great Lake, Craven County, North Carolina: H. H. BRIMLEY, Curator State Museum, Raleigh, N. C. (Read by title.)

Senses of Insects: FRANKLIN SHERMAN, JR., Entomologist, Department of Agriculture, Raleigh, N. C.

This paper merely reviews the well-understood facts in regard to the senses of insects, the organs of special sense, their location, etc. No claim is made for originality in the matter presented.

The antennæ are declared to be the most important organs of special sense, as they serve as organs of both touch and smell, and apparently in some cases (mosquitoes of the genus *Culex*) as organs of hearing also.

Methods of Reproduction among Insects: Z. P. METCALF, Department of Agriculture, Raleigh, N. C.

Some Unrecognized Factors Affecting the Potential Difference Developed in an Induction Coil: C. W. EDWARDS, Trinity College, Durham, N. C. (Read by title.)

Oral Gestation among Teleostean Fishes: E. W. GUDGER, State Normal College, Greensboro, N. C.

Oral gestation is not uncommonly practised by siluroid and cichlid fishes. Many marine, estuarine and fresh-water catfishes of Central and South America, India and Australia carry their eggs and young in their mouths. With one possible exception, it is always the male who thus incubates the eggs.

Among the cichlids of South America, Africa and Syria this habit is very prevalent. In these fishes it is generally the females who thus care for their progeny.

Scattering cases of this habit among other teleosts are occasionally met with, especially among species belonging to the genera *Apogon* and *Cheilodipterus*. It seems probable that further research among these latter forms will extend our knowledge of this curious habit which is invariably associated with unusually large size of the eggs.

The writer has been engaged for fifteen months in working up the literature of this extraordinary habit in fishes. This work is being done for the Bureau of Fisheries, and will be issued in its publications.

The Linear Classification of the Cubic Surface: ARCHIBALD HENDERSON, University of North Carolina, Chapel Hill, N. C.

The speaker considered the twenty-one different types of the cubic surface (neglecting the two scrolls) reduced to canonical form with reference to the straight lines lying wholly upon the surface. By proper choice of constants, he succeeded in representing, in each case, the lines in position with reference to the fundamental tetrahedron. He exhibited diagrams, in color, of the lines, with proper reference to each other and to the fundamental tetrahedron, for all twenty-one types of the cubic surface.

The Terminal Bud of the Sweet Gum, Liquidambar styraciflua: E. W. GUDGER, State Normal College, Greensboro, N. C.

This tree has on the ends of its lateral branches terminal buds of two kinds. One is of ordinary size and contains only leaves and an embryonic branch. The other kind is very large and swollen. Dissection or subsequent development on the tree shows that this contains a cone made up of the familiar sweet gum balls—it is seemingly a terminal bud devoted solely to the production of flowers. Later, the lowest ball (sometimes the two lowermost) develops an extraordinarily long pedicel, and the stem bearing the cone breaks off just above the point of attachment of this pedicel leaving but one ball of the six or eight to come to maturity. About this time a very small leaf bud makes its appearance just below the base of the cone and this lateral bud later becomes the terminal bud which by its growth elongates the branch.

Social Science: The Work of the Woman's Association for the Betterment of Schools: Mrs. CHARLES D. MCIVER, Field Secretary Woman's Betterment Association of North Carolina, Greensboro, N. C.

Notes on the Petrography of the Granites of Chapel Hill, N. C.: H. N. EATON, University of North Carolina, Chapel Hill, N. C.

Some Results of Municipal Milk Inspection in Raleigh, N. C.: F. L. STEVENS, North Carolina Experiment Station, Raleigh, N. C.

E. W. GUDGER,
Secretary

THE TORREY BOTANICAL CLUB

THE meeting of May 26, 1909, was held at the museum of the New York Botanical Garden and was called to order at 3:30 P.M. by President Rusby. Thirty-four persons were present. After the reading and approval of the minutes of the preceding meeting, the scientific program was presented, the first contribution being made by the president, Dr. H. H. Rusby, who spoke of "The Earliest Spring Flowers in the Vicinity of Charleston, South Carolina."

The speaker's remarks were based on observations made between March 16 and March 23, 1909, at Summerville, which is about twenty-two miles northwest of Charleston. By a careful comparison of the state of vegetation there in March with that of New York and vicinity in May, it was concluded that there was a difference of eight or nine weeks this year in the progress of the season, though it is probable that in an ordinary year the difference would be about seven or eight weeks.

Summerville is noted for the existence there of Dr. Shepard's tea-gardens, the only tea plantation conducted on a commercial scale in this country. There are now about 100 acres of plantation in productive operation there, from which 12,000 to 15,000 pounds of tea are sold annually. Success has been obtained through an extensive series of experiments with all the known varieties of the tea plant. No attempt is made to compete with the Orient in the cheaper grades of tea, but in the more highly prized grades the Summerville product is already taking a leading rank.

The plants collected at Summerville by Dr. Rusby were then discussed and exhibited in groups, arranged according to habitat and time of flowering.

Dr. Britton in discussing Dr. Rusby's paper referred to the popular belief among the fruit-growers of Delaware that the spring advances northward at the rate of thirteen miles a day—a belief that would seem to be supported by Dr. Rusby's observation that there is a difference of seven or eight weeks in the progress of the season between Summerville, S. C., and New York.

The second paper on the scientific program was by Dr. J. A. Shafer on "Botanizing in Cuba." Dr. Shafer was in northern Cuba from January 22 to May 6 of the present year in the interests of the New York Botanical Garden. He gave a popular account of his collecting experiences there and of the general floral features of the regions visited. Headquarters were established at La Gloria, Nuevitas and Holguin, and shorter visits were made to Gibara, Cacocum, Alto Cedro, Paso Estancia and Antilla.

One of the objects of the expedition was to ascertain whether the flora of northern Cuba had any relation to that of the adjoining Bahamas, which islands have been the subject of extensive floristic investigations by Dr. Britton and others; but on the northern mainland of Cuba one notes little relationship.

Cayo Guajaba, one of the chain of outlying northern islands, none of which seems to have been visited by botanists heretofore, probably on account of the difficulty of access, was examined at several points and was found to possess a very different flora from that of the mainland south of it, many of the species being Bahamian.

North of Nuevitas, the railroad to Camagüey passes through many miles of rather barren palm-covered savannas, through which an occasional stream passes, whose winding course can readily be made out by a fringe of green trees, overtopped by the graceful heads of the royal palm. From Camagüey to Holguin, a distance of about one hundred and fifty miles, one passes alternately through stretches of dry savannas, rich dense woods and fertile pastures.

Paso Estancia, towards Santiago, on the Cauto River, was made the last place from which extensive explorations were carried on. The river, which is the largest in Cuba, here passes between high bluffs made up of stratified limestone and clay or sand. It has many turns, with gravelly bars and sandy or muddy banks, and many things can be found there. The surrounding country is a dense forest, with a great variety of species.

After a discussion of Dr. Shafer's paper by Dr. and Mrs. Britton, Dr. Rusby and others, adjournment followed.

MARSHALL A. HOWE,
Secretary pro tem.