EARLY AMERICAN CHEMICAL SOCIETIES.[1]

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THREE chemical societies were organized in the United States before the close of the first quarter of this century; one as early as 1792, the second in 1811, and the third in 1821. These societies were short-lived, local in jurisdiction, and without much influence on the progress of the science, but it is interesting to note that professional, teaching, and amateur chemists in America formed associations for mutual improvement and for the advancement of their calling, long before their European brethren. The Chemical Society of London, the oldest in Europe, was founded in 1841, forty-nine years after the first American society; that of Paris dates back from 1858, and that of Germany from 1868. American chemists were not impelled to form independent societies owing to a lack of organizations for men of science, but they early felt the advantages of a specialized association. The society of 1792, and that of 1811, were both founded in a city honored by the presence of the venerable and dignified American Philosophical Society, established by Benjamin Franklin in 1743.

The existence of these societies has long been known, but only through casual references to them by writers on the beginnings of science in the United States; Prof. Benj. Silliman, in his essay on "American Contributions to Chemistry," read at the centennial celebration of the discovery of oxygen, held at Northumberland, in 1874, alludes to them incidentally, and Dr. Brown Goode, in his historical addresses to the Biological Society of Washington, barely mentions them.

The publications too, of the earlier societies, are very little known, being rarely found in the best libraries.

Under these circumstances it has seemed not altogether useless to summarize what information concerning these societies I have been able to gather, and to offer it as a contribution to the history of chemistry in the United States.

The three societies are:

I. The Chemical Society of Philadelphia, founded in 1792.

[1] Read before the Washington Chemical Society, April 8, 1897.

II. The Columbian Chemical Society of Philadelphia, founded in 1811.

III. The Delaware Chemical and Geological Society, founded in 1821.

I. THE CHEMICAL SOCIETY OF PHILADELPHIA.

The Chemical Society of Philadelphia was undoubtedly the earliest organized body of chemists in either hemisphere, having been "instituted" in 1792. The society does not seem to have published records of its meetings, nor of the papers presented thereat, and since at that early day the primitive local newspapers paid little attention to items of scientific interest, information concerning it is not readily obtained. I find, however, that it was flourishing in 1801–2, when it had the following officers :

President—Dr. James Woodhouse.
Vice-presidents—Felix Pascalis and John Redman.
Librarian—William S. Jacobs.
Curators—William Brown and John S. Dorsey.
Treasurer—John Y. Bryant.
Secretary—Thomas Brown.

The society held stated meetings each week.

The President of the society, Dr. James Woodhouse (1770–1809), was at the time professor of chemistry in the medical department of the University of Pennsylvania, of which he was a graduate.

This chair had been held by Dr. James Hutchinson, and on his death, in 1793, Dr. Joseph Priestley, who arrived from England a few months later, was invited to succeed him, but he declined, preferring the quiet life of Northumberland, and Dr. Woodhouse was chosen instead. Dr. Woodhouse contributed several medical papers to the New York Medical Repository, and to Coxe's Medical Museum; he also edited Chaptal's Elements of Chemistry (fourth edition, 1807, 2 vols.), and Parkinson's Chemical Pocket-Book (1802). He is said to have been the first to prove by comparative experiments the superiority of anthracite coal from Pennsylvania over bituminous coal from Virginia for intensity and regularity of heating power. (Silliman.)

The first vice-president, Felix Pascalis Ouvrière (1750–1840), had an interesting career. He was born in France, where he received his medical education; he emigrated to Santo Domingo, and while practising medicine there acquired an extensive knowledge of botany and other branches of natural history. In 1793 a revolt among the negroes compelled Pascalis to flee and he took refuge in the United States, first at Philadelphia, and later at New York, where he resided more than thirty years. He was the founder of the Linnæan Society of New York, and the author of several medical papers and reports.

The second vice-president, Dr. John Redman, (1722–1808), was a native of Philadelphia, and educated in European medical schools and hospitals. In 1786 he was made president of the Philadelphia College of Physicians. He was regarded as one of the foremost practitioners of medicine of Philadelphia, but his methods now appear super-heroic.

Dr. John Syng Dorsey (1783–1818), one of the curators, was professor of surgery and afterwards of materia medica in the University of Pennsylvania. He had a high reputation as a surgeon, but his qualifications for membership in a chemical society seem to have been based chiefly on the fact that in his youth he had attended the chemical lectures of Sir Humphry Davy (1803).

I have not found the roll of members of this early society, but it appears that Priestley, Hare, and Seybert were active in it. The ambition of the members is shown by the circumstance that in 1802 there was a standing committee prepared to "annalize every mineral production" brought before them and to give "an accurate account of each specimen free of expense."

The meeting held October 24, 1801, was made memorable by the appointment of a committee for the "discovery of means by which a greater concentration of heat might be obtained for chemical purposes." On this committee was placed among others Robert Hare, then only twenty years of age; but so soon as December 10th of the same year, he reported to the society, on behalf of the committee, his invention of the "hydrostatic" (oxy-hydrogen) blowpipe. I need not here eulogize this important and useful invention, which yielded such a fruitful harvest of discoveries. This alone justified the existence of the

first of chemical societies. In the following year the society caused Dr. Hare's account of this blowpipe to be printed in a pamphlet of thirty-four pages, 12mo., with one plate. This now rare booklet bears the title: "Memoir on the Supply and Application of the Blowpipe, containing an account of a new method of supplying the blowpipe either with common air or oxygen gas; and also of the effects of the intense heat produced by the combustion of the hydrogen and oxygen gases. Illustrated by engravings. Published by order of the Chemical Society of Philadelphia, to whom it was presented by Robert Hare, jun., Corresponding Member of the Society. Philadelphia. Printed for the Chemical Society by H. Maxwell, Columbia House, 1802."[1]

Robert Hare's subsequent career as professor of chemistry in the medical school of the University of Pennsylvania from 1818 to 1847, is well known and accessible to all inquirers.

How much longer this association of chemists continued to meet, I have not ascertained. But the work of this society was evidently remembered by those who, ten years later, founded a new one, inasmuch as they designated it by the prefix "Columbian" to avoid confusion.

II. THE COLUMBIAN CHEMICAL SOCIETY OF PHILADELPHIA.

The Columbian Chemical Society was founded in the month of August, 1811, by "a number of persons desirous of cultivating chemical science and promoting the state of philosophical inquiry." The names of the gentlemen who attended this meeting are not certainly known, but it may be presumed that they included most of those who were then elected to office; these were as follows:

Patron—Hon. Thomas Jefferson, Esq.,
President—Prof. James Cutbush,
Vice-presidents—George F. Lehman and Franklin Bache,
Secretary—John C. Heberton,
Treasurer—James J. Hamm,
Orator—John R. Barnhill,

and a "Corresponding Committee" of three: John Barnes, M.D., John Lynn, M.D., and Charles Edwards.

Thomas Jefferson's commanding position in the world of

[1] A copy of this is found in the Army Medical Library, Washington, D. C.

science and arts, as well as his literary attainments, well qualified him for the dignified office of patron. He had held the office of president of the most prominent scientific body in the United States (American Philosophical Society) for many years, and only relinquished it to accept the higher one of Chief Magistrate of the Nation. Seventeen months before the founding of the Chemical Society, Jefferson had retired from the presidency, after serving his country eight years, and was living at his country seat, Monticello.

James Cutbush, president of the Columbian Society, was at that time professor of natural philosophy, chemistry, and mineralogy at St. John's College. Little is known of his early history; in 1814 he was appointed to the army with rank of Assistant Apothecary General, and he held the position of chief medical officer of the United States Military Academy at West Point, from June, 1820, to November, 1821; the army being reorganized, he became assistant surgeon and acting professor of chemistry and mineralogy at the same institution, positions which he held until his death, December 15, 1823.

Dr. Cutbush's papers, presented to the Columbian Society, will be considered below; he published also the following: "On the Formation of Cyanogen in Some Chemical Processes Not Before Noted,"[1] "On the Composition and Properties of the Chinese Fire,"[2] "On the Composition and Properties of Greek Fire."[3] He was also the author of several books: "Useful Cabinet," (1808); "Philosophy of Experimental Chemistry," (Philadelphia, 1813), and "A System of Pyrotechny," (Philadelphia, 1825). The last named is an elaborate work of more than 600 pages, octavo.

George F. Lehman, the first vice-president, published articles in Mitchill's Medical Repository, chiefly on medical subjects.

Franklin Bache, the second vice-president, was at that date a youth of only twenty years, who had graduated at the University of Pennsylvania the year before the founding of the society. He was a grandson of Benjamin Franklin and a member of the distinguished Bache family, which numbered so many eminent

[1] *Am. J. Sci.*, 6, *1822*.
[2] *Ibid*, 7, *1823*.
[3] *Ibid*, 6, *1822*.

men of science. He afterwards became professor of chemistry at the Franklin Institute, and in 1841 at the Jefferson Medical College, which chair he held until his death in 1864. He is remembered also as the author of "A System of Chemistry for the Use of Students of Medicine," (Philadelphia, 1819), and of other chemical treatises.

The constitution adopted by the founders of the society, besides the usual provisions for regulating business, contained some unusual features; the officers included an orator, and Article VII prescribed: "An oration on some chemical subject within two months after the commencement of the medical lectures in the University of Pennsylvania, in each year." Since the "Memoirs" published by the society contain no "oration," it is to be feared that the incumbent's efforts were not satisfactory.

Two articles in the constitution deal with fines; "Every member shall be fined 12½ cents for absence each roll, unless satisfactory reasons be offered;" and again: "Any member being elected to office and refusing to serve, shall be fined one dollar."

Another notable provision is as follows: "The society shall appoint, once in each month, some member to read an original chemical essay, for neglect of which, the member so appointed shall be fined one dollar." These fines, with the annual fee of two dollars, were evidently expected to maintain a full treasury.

To become a member of the society, special qualifications were prescribed; after being proposed and seconded, the candidate "shall read an original essay on some chemical subject, on which any member may speak not more than ten minutes." After this trial of his ability, a two-thirds vote of the members present at a subsequent meeting were required to secure election.

It seems to have been easier to be put out of the society than it was to get in, for "any member behaving in a disorderly manner, shall be expelled by consent of two-thirds of the members present."

This mandatory "shall" is used throughout the regulations; the president "shall preserve order," the secretary "shall keep fair minutes," the constitution "shall be revised annually," and so on. To insure against members withdrawing early from

a dull meeting, the "Secretary shall call the roll at the opening and close of each meeting and mark down absentees," each of whom is then fined 12½ cents as stated. Never did a society undertake to control its members with more stringent rules!

The members who subscribed to these regulations were divided into two classes, "Junior" and "Honorary" members, the former corresponding to a class which would now be styled 'Associates," and the latter including both American and foreign chemists of distinction. The junior members numbered thirteen, the honorary members numbered sixty-nine, thirty-one of whom were Europeans. The home list included most of those chemists then living in America, whose labors contributed largely to the foundations of the science in the New World. Brief notices of some of the members will serve to summarize the status of chemistry in the United States for the years 1811–1813.

Dr. Benjamin Smith Barton (1766–1815), held the chair of medicine, natural history, and botany in the University of Pennsylvania. Dr. Barton has been called by his admirers, "the father of American natural history," though there are other claimants for this honorable designation, Mitchill, of New York, and Thomas Jefferson. Dr. Brown Goode, writing of Barton, says he, of all the early Philadelphia naturalists, "had the most salutary influence on the progress of science." He was a leader in the American Philosophical Society, and an agreeable writer on natural history topics, and though he made no contributions to chemistry, was a worthy member of the society.

Dr. Archibald Bruce (1777–1818), one of the pioneers of mineralogical science in America; he had established the American Mineralogical Journal, one year before the date of which I write. His analyses of minerals mark him as a skilful chemist. He held the chair of mineralogy in Columbia College, New York.

Joseph Cloud (1770–1845) was assay master of the United States Mint in Philadelphia, and already distinguished by his researches on palladium (1807).

Thomas Cooper (1759–1840), born in London, had come to America in 1792, with his friend Priestley, whose radical views in politics and religion he shared. Dr. Cooper wrote much on political, ethical, and philosophical subjects, and published some

essays on chemistry. In 1811–14, the period of the Columbian Chemical Society, he held the chair of chemistry at Dickinson College, Carlisle, Pa., and in 1819–34 he held the same position at the College in Columbia, S. C., of which he afterwards became president.

Dr. John Redman Coxe was professor in the medical department of the University of Pennsylvania, having succeeded Dr. Woodhouse. He made several original observations in chemistry published in current periodicals.

Dr. Edward Cutbush (1772–1843) was surgeon of the United States Navy and professor of chemistry in the medical school of the Columbian University, Washington (1825–27). He has another honorable claim to distinction, having been the founder in 1819 of the Columbian Institute for the Promotion of Arts and Sciences in Washington, a sort of precursor of the Smithsonian Institution.

Passing with brief mention Dr. Elisha de Butts, professor of chemistry in the College of Maryland, Prof. Benjamin de Witt, of New York, and Dr. John Syng Dorsey, already mentioned as a member of the society founded in 1792, we reach the more familiar name of Dr. John Griscom, "the acknowledged head of all teachers of chemistry in New York City," for more than thirty years.

The next name in the alphabetical list of members is that of Robert Hare, professor of natural philosophy in the University of Pennsylvania, whose career we have already noticed.

Dr. David Hosack (1769–1835), professor of botany and materia medica in Columbia College, New York, is best known as the founder of the first public botanic garden in the United States, in 1801. His contributions to science were chiefly in medicine. The tragic circumstances of his death have been nearly forgotten; he died of shock at the disastrous conflagration in New York City in 1835, which swept away his property to the value of $300,000.

Dr. Henry Jackson, professor of chemistry at Athens College, Georgia, is followed by His Excellency, James Madison, LL.D., President of the United States of America, whose name added luster to the rolls of the society, but whose claim to the membership can only be based on extensive general information.

Dr. John Manners, of Philadelphia, affixes to his name the initials F.A.N.S., the Academy of Natural Sciences, having been founded one year before the printing of the list of members. His contributions to the Chemical Society will be noted below.

Dr. John Maclean, (1771–1840), was the first professor of chemistry in the College of New Jersey, now Princeton University, to which chair he was elected in 1797. In accordance with the prevailing custom, he also gave the instruction in astronomy, mathematics, natural philosophy, and natural history; this fact is ample apology for his not appearing in the ranks of original investigators. Prof. Maclean published in 1797, "Two Lectures on Combustion," in which he upheld the views of Lavoisier, as opposed to the phlogistic theory maintained by Dr. Priestley.

The Hon. Samuel L. Mitchill, M.D., F.R.S.E. (1764–1831), professor of chemistry and natural history in Columbia College from 1792, was active in many branches of scientific research. In 1798 he established the New York Medical Repository, which for sixteen years was an influential organ in recording and diffusing progress in general science, as well as in medicine. His zeal for science did not prevent his taking part in national affairs, for he occupied a seat in the senate of the United States from 1804.

Dr. Thomas D. Mitchell, F.A.N.S., was one of the most active members of the society, frequently contributing to its memoirs.

Passing by Dr. John C. Osborne, professor of the institutes and practice of medicine in Columbia College, New York; Dr. Joseph Parish, of Philadelphia; Mr. Robert Patterson (1743–1824), professor of mathematics and lecturer on natural philosophy in the University of Pennsylvania, director of the United States Mint, and afterwards (1819) president of the American Philosophical Society; Dr. Nathaniel Potter, professor of the theory and practice of medicine, University of Maryland, we reach the eminent Dr. Benjamin Rush, professor of the institutes and practice of medicine in the University of Pennsylvania. Dr. Rush (1745–1813) has been characterized by Benjamin Silliman as "undoubtedly the first Professor of Chemistry in America," his appointment dating August 1, 1769. In his

busy life, besides his professorial chair, he filled the positions of surgeon-general of the United States Army (1777), treasurer of the Mint, president of the Society for the Abolition of Slavery, vice-president of the Bible Society of Philadelphia, and conducted a large medical practice in the same city.

Dr. Adam Seybert (d. 1825), was one of the earliest American chemists to make a series of analyses of the air by eudiometric methods. Having made twenty-seven air analyses during a voyage across the Atlantic, he compared the results with others made on land and drew the conclusion that the sea exerted purifying power over the air; his paper before the American Philosophical Society bore the date 1797.

Benjamin Silliman is a name so familiar to American chemists as to require no eulogium in this place. At the founding of the chemical society he was forty years of age and had held the chair of chemistry in Yale College for ten years. It should be remembered that he did not begin publishing the American Journal of Science until 1818

Dr. John S. Stringham, professor of chemistry in New York, (institution not specified); Dr. Jared Troust, (whose name should be written Gerard Troost), lecturer on mineralogy in the Academy of Natural Sciences, Philadelphia, and afterwards professor of chemistry, mineralogy, and geology in Nashville University (1828–50); Lawrence Washington, Esq., of Virginia, and Dr. Caspar Wistar, professor of anatomy in the University of Pennsylvania, with his relative Charles Wistar, complete the roll of home members.

The prominence of medical men on this list is evident, and is easily explained. Before the days of schools of science, and before colleges devoted a portion of their curricula to scientific studies, almost the only training in science received by American youth was in the medical schools. The chairs of natural history and of the physical sciences were almost exclusively held by physicians whose education more nearly qualified them for teaching these branches of knowledge than the graduates of the classical courses customary in all colleges.

To elevate the standard of membership in the Columbian Chemical Society, a number of distinguished foreigners were enrolled. France contributed Adet, Berthollet, Chaptal, Dey-

eux, Abbé Hauy, Bouillon-Lagrange, Gay-Lussac, Monge, Guyton de Morveau, Parmentier, Pelletier. Sequin, Thénard and Vauquelin. Great Britain was represented by Sir Joseph Banks, John Dalton, Sir Humphry Davy, John Davy, J. A. de Luc, Hatchett, Dr. William Henry, Sir William Herschel, Dr. John Hope, John Murray, William Nicholson, Dr. G. Pearson, Mr. W. H. Pepys, Dr. Thomas Thomson, Alexander Tilloch and Dr. William Hyde Wollaston. Spain was represented by Professor Proust of Madrid, and the other countries of Europe had not a single representative. The absence of such eminent names as Richter, Klaproth, Stromeyer, Trommsdorff and Gehlen, of Germany, as well as of Berzelius, the Swede, presumably indicates that at this early date, communication and exchange of courtesies with Germany and Northern Europe was less common than with England and France.

The Columbian Chemical Society of Philadelphia published in 1813 one volume of Memoirs;[1] this forms a book of 221 pages, octavo, and bears the imprint of Isaac Peirce, No. 3 South Fourth Street, Philadelphia. It contains twenty-six essays, by ten writers, on a great variety of topics, original, speculative and practical.

No less than eight of the papers are from the pen of Dr. Thomas D. Mitchell, and these I proceed to review. Dr. Mitchell's "Remarks on the Phlogistic and Antiphlogistic Systems of Chemistry" opens the volume; in this essay he supports the Lavoisierian theory of combustion, stating that there is "no necessity for the principle of inflammability;" he cites the experiment of Woodhouse, who obtained an inflammable air by heating charcoal with scales of iron, both being free from water, and points out that Cruikshank, of Woolwich, demonstrated that the inflammable gas thus obtained is gaseous oxide of carbon (carbon monoxide), discovered by Priestley in 1799, and combustible, although containing no hydrogen. He compares combustion with neutralization of an acid and base, saying: "Inflammation and acidity are effects resulting from the action of relative causes, and not attributable to a single agent or principle."

Dr. Mitchell's second paper, "Remarks on Heat," deals with

[1] Copies of the Memoirs are found in Philadelphia libraries, and in the private library of the writer.

speculations on latent heat, objecting to this term and to Dr. Black's theories.

In a paper entitled "On Muriatic and Oxy-Muriatic Acids," Dr. Mitchell vehemently attacks the views of Sir Humphry Davy as to the non-existence of oxygen in muriatic acid, clinging to the statement of Lavoisier, that all acids contain oxygen. In a section on combustion, he remarks, "we have incontestible proof that oxygen gas contains light," and he regards combustion as accompanied by the decomposition of oxygen gas.

Dr. Mitchell's fourth paper is of a more practical character, being the "Analysis of Malachite" from Perkioming, Pennsylvania. The result is given as follows: "120 grains of the green carbonate contained carbonic acid, 30 grains; quartz and silicious earth, 68 grains; brown oxide of copper, 15 grains; loss in the process, 7 grains."

The specimen was evidently a poor one; no account was taken of the water, and reporting results in percentages was not in vogue.

In some "Remarks on Putrefaction," the same writer discusses the action of antiseptics, and attributes the virtue of nitrate of potash to the increase of cold produced by the muriate of soda.

Dr. Mitchell's "Chemical View of Secretion," and his "Analysis of Professor Coxe's Essay on Combustion and Acidification," are polemical and speculative; in his "Remarks on the Atmosphere" he argues to prove the atmosphere a chemical union of oxygen and nitrogen.

Franklin Bache contributes three essays to the volume. "An Inquiry into What Circumstances Will Warrant us Justly to Reckon any Substance a Principle of a Common Property of Any Set of Bodies," discusses the much disputed question of that day, whether hydrogen as well as oxygen can be an acid-forming principle. His conclusion being, "it may." Bache's second paper is entitled, "An Inquiry Whether Mr. Berthollet was Warranted from Certain Experiments in Framing the Law of Chemical Affinity, that it is Directly Proportional to the Quantity of Matter." In this essay the author points out "the probable way in which this great philosopher fell into this great error." In a third paper styled "Thoughts on the Expediency of

Changing Parts of the Chemical Nomenclature," Mr. Bache proposes the following names: Nitral acid forming nitrotes, nitril acid forming nitrutes, nitrous forming nitrites, and nitric acid forming nitrates, for the several acid-forming oxides of nitrogen. Fortunately his influence was insufficient to inflict these names on chemical language.

Dr. John Manners contributed four papers to the Memoirs. (1) "Experiments and Observations on the Effect of Light on Vegetables and upon the Physiology of Leaves," which abounds in quotations from Darwin's "Botanic Garden." (2) "Analysis of a Mineral Spring at the Willow Grove," (fourteen miles from Philadelphia). In this the author was assisted by Dr. Mitchell. They report the action of each testing solution on the water, and conclude that the water contains iron and sulphuretted hydrogen, and show the absence of lime, copper and carbonic acid." (3) "On the Production of Sulphuretted Hydrogen by the Action of Black Sulphuric Acid, Diluted with Water on Iron Nails." The acid had been blackened by a piece of cork which had fallen in. (4) "Experiments and Observations on Putrefaction." In this paper Dr. Manners tested the influence of carbonic acid, hydrogen and other gases on putrefying flesh, and also attempted to collect and analyze the gases generated by the same. He concludes that "putrefaction depends on a destruction of the equilibrium of attractions which exists in the elementary principles of which the animal substance is composed in a healthy state, occasioned by the loss of vitality in consequence of which new compositions and decompositions ensue."

Professor Cutbush, President of the Society, wrote "On the Prognostic Signs of the Weather," and "On the Oxyacetite of Iron as a Test for the Discovery of Arsenic;" the latter being a good presentation of his discovery, subsequently used as a quantitative method by Kotschoubey.

Mr. Samuel F. Carl, one of the junior members, has two papers containing analyses, the first of the mineral spring at Bordentown, New Jersey, which proved to be a "carbonated chalybeate water," and the second of two specimens referred to him by the society; these proved to be respectively an iron ore

and a ferruginous copper ore. The method of reporting results seems very crude to a modern analytical chemist.

Dr. Joel B. Sutherland contributes "Speculations on Lime," in which he claims that if mortar be made with sand containing common salt, the resultant compound gives so much coldness to the mass that during the whole summer vapor is almost incessantly precipitated on the wall with which it is plastered. He also wrote "A Few Remarks on the Nature of the Nervous Influence." Akin to the latter are the "Thoughts on the Principle of Excitability," by George Ferdinand Lehman, who also wrote "On the Emission of Oxygen by Plants."

Mr. William Hembel, Jr., has two papers, one entitled "Observations on the Formation of Muriate of Potash in the Process of Preparing the Hyperoxymuriate of Potash," which is complicated by the belief that hydrochloric acid is an oxygen compound; and another entitled "A New Method of Mounting Woulfe's Apparatus," which is unintelligible owing to the omission of a woodcut to which the text refers.

Mr. Edward Brux, of France, one of the junior members, writes "Upon the Effects of Various Gases upon the Living Animal Body," which consists largely of speculations: notwithstanding which he cites an admirable passage from Dr. Bostock; "Physiologists have, in general, been more inclined to form hypotheses than to execute experiments, and it has necessarily ensued from this unfortunate propensity that their science has advanced more slowly than perhaps any other department of natural philosophy." Unfortunately this truth was not fully recognized by the members of the Columbian Chemical Society.

A contemporary journal (N. Y. Medical Repository), in reviewing the "Memoirs," uses the following quaint language: "It is highly gratifying to behold a band of worthies like those before us, laboring to analyze the compounds which they find ready made, to form by synthesis new combinations in the laboratory, and thereby to deduce correct doctrines from the facts which are disclosed. We cordially congratulate them on their noble occupation and on the progress they have made. We hope they will be persevering and undaunted. And if from this beginning there shall arise great improvements in theoretical disquisition, as well as in economical exercise, we shall rejoice

with a mingled glow of amicable and patriotic sentiment."

III. THE DELAWARE CHEMICAL AND GEOLOGICAL SOCIETY.

The Delaware Chemical and Geological Society was organized at Delhi, Delaware County, New York, September 6, 1821; the first meeting was held at the hotel of G. H. Edgerton in the village, and the following officers were chosen:

President—Charles A. Foote.
Vice-President—Rev. James P. F. Clark.
Recording Secretary—Charles Hathaway.
Corresponding Secretary—Dr. Calvin Howard.
Treasurer—Selah R. Hobbie.
Directors—Cornelius R. Fitch, R. W. Stockton, Ebenezer Steele.

The society was composed of "between forty and fifty well-informed and respectable inhabitants" of the County of Delaware. The following gentlemen were elected corresponding members: Colonel Henry Leavenworth, U. S. A.; Edwin Croswell, of Catskill, and O. Rice, of Troy.

The society had for its object the improvement of the members in literature and science, especially in chemistry and mineralogy. The members planned to form a library and to secure a chemical laboratory; they made a collection of the minerals and rocks of the region, which was still preserved in the Delaware Academy in 1856. The meetings of the society were held quarterly, and at each an essay or an "original scientific discourse" was presented; it was, however, not long sustained.

In reviewing the condition of chemical science in the United States, as indicated by the membership and achievements of these early societies, we note that those who held the most prominent places were handicapped by the necessity of devoting a large part of their intellectual energy to topics quite outside of the domain of chemistry itself. The active members were either busy with the art of healing, or with teaching several branches of the physical and natural sciences, and too often chemistry was regarded in the colleges as a kind of side issue, or appendix to the more important subjects of instruction. This was caused

by the necessity of earning a competence at a time when there was no opportunity of reaping pecuniary rewards by skill as an analyst, or by the application of science to the manufacture of products involving chemical knowledge. Indeed, in default of this stimulus to laboratory work, it is not surprising that the papers read to the societies were largely either reviews of the grand discoveries made by Europeans, or essays in which the imaginative faculty was given free play, it being far easier to indulge in speculation than to discover new facts.

In the early struggles of a country to secure a place among nations, few men of ability can devote their energies to the pursuit of science for science's sake; the environment is more favorable to development of the inventive faculty than of the peculiar talent for conducting abstruse researches in an exact science. Add to this the limited facilities for acquiring chemical knowledge in the New World, and the distance of amateurs from the European head-centers of learning, and it is certainly noteworthy that American chemists combined to form associations for mutual improvement and the advancement of their calling at so early a period.

A fourth attempt to establish a chemical society was made at New York City in 1876; the organization was at first somewhat restricted in its plan, but in 1892 a change in its constitution was effected, which broadened its scope, and it now forms a strong, influential and truly national society. Its 1106 members, working in nine chartered sections, represent forty-seven states and territories, besides several countries of Europe, South America, and distant Australia. Its Journal, comprising 1150 pages annually, is an authoritative medium for the preservation and diffusion of the researches made in the United States, and its annual meetings, held in diverse localities, strengthen the bonds which unite its members in good fellowship, and in the pursuit of their common profession. *Long may the American Chemical Society continue in its prosperous career!*