Mr. Winston spoke briefly on the plans of a committee of delegates at Paris appointed in the interest of an international auxiliary language intended to serve as a medium of communication especially between scientific men.

Mr. R. A. Harris, of the Coast and Geodetic Survey, in a paper entitled 'On the Feasibility of Measuring Tides and Currents at Sea,' suggested the use of a piano-wire sounding apparatus for such measurements, and ascertained the magnitudes of errors which might be involved when the weight of the wire, impulse of the current and inaccurate estimates of verticality at the surface are involved. The sounding 'lead,' which is not to be recovered in deep water, consists of some weight, a box of stones for example, sufficiently heavy for permitting a suitable tension to be obtained. The measurements of the rise and fall of the tide, as here suggested, necessitate much greater care than do those of the tidal streams and other currents.

Mr. F. J. Bates, of the Bureau of Standards, then spoke on 'The Effect of a Magnetic Field on Plane-polarized Light.' Commencing with Faraday's discovery in 1849, the historical development of the subject was followed and ended with the speaker's work on the rotary dispersion of anomalous dispersing substances. Solutions of fuchsin, cyanin, lackmus and analine-blue were studied with a sensitive-strip spectral polariscope and a magnet which gave 18,000 lines per sq. cm. The differences between 1 cm. cells of solvent and solution were noted. In no instance was it possible to observe an anomaly in the rotation, even though the sensibility of the apparatus was ten times that of preceding investigators. The anomalous effects observed by Schmauss were shown to be due to the effect of the selective absorption of the solutions studied. For a detailed account of the work see Bates, *Wied. Ann.*, No. 13, 1903.

CHARLES K. WEAD,
Secretary.

CHEMICAL SOCIETY OF WASHINGTON.

THE 148th regular meeting of the Chemical Society of Washington was held Thursday evening, February 11, in the Assembly Hall of the Cosmos Club. The program for the evening consisted of an address by Professor Wilder D. Bancroft, of Cornell University, upon the subject 'Inorganic Chemistry and the Phase Rule.'

The speaker discussed the subject under the two general heads—the phase rule as an instrument for research and secondly the phase rule as a rational basis for the classification of inorganic chemistry. Under the first of these topics he cited a large number of illustrations of cases to which the phase rule has been successfully applied. Among these was mentioned the work of van't Hoff and his associates upon the Stassfort salt deposits. Also the work which is now being carried on at Cornell University on the bronzes. The application of the phase rule to the separation of mixtures of salts by crystallization was illustrated briefly by referring to the case of a mixture of sodium and potassium chlorides.

A. SEIDELL,
Secretary.

THE ELISHA MITCHELL SCIENTIFIC SOCIETY.

THE 152d meeting was held in Person Hall in the Chemical Lecture Room on February 9, at 7:30 P.M. The following papers were given:

DR. W. C. COKER: 'Mendel's Law of Heredity.'

DR. H. V. WILSON: 'Incomplete Division in Vertebrate Animals.'

PROFESSOR COLLIER COBB: 'Composition of Coastal Plain Sands in Relation to Distance from Existing Shore Lines.'

ALVIN S. WHEELER,
Recording Secretary.

DISCUSSION AND CORRESPONDENCE.

CONVOCATION WEEK.

TO THE EDITOR OF SCIENCE: The first thing to be done in connection with the convocation week meetings of the scientific societies is to secure a more perfect organization. Some man or committee must take up the matter of arranging a complete program so as to avoid the present go-as-you-please condition in which meetings are set at almost any time in the week. This is one of the causes of the

friction and jealousy which detract so much from the pleasure and profit of these annual meetings. One who would like to attend two meetings occurring at the same hour is not in the best humor, and is pretty likely to think that somebody blundered, or that some society is crowding out his society. If I find that A has a meeting set at the same time as B, taking away some members of the latter, I quite naturally blame the A's for doing so, and no doubt the A's blame the B's in return. It may be an almost impossible task to arrange a program so as to avoid such interferences, but without question much can be done to lessen their frequency. I think I know the botanists of the country well enough to be able to say confidently that if a program were made so as to allow time for each association, society and club, we should be a veritable 'happy family.' As it is, there is a remarkably good feeling among American botanists, although some of us think that there is something yet to be desired. It is not enough, in these days of compact organization in all other lines of human effort, that scientific men should be on good terms with one another. They may do their individual pieces of work almost as well, perhaps. But this is not sufficient; scientific men should present a united front; they should be like a well-organized army, and not as isolated guerrillas. We should 'get together' ourselves, into somewhat compact societies or clubs (not too many), and then ask the council or its committee to make such a program as will prevent interference in times of meetings.

The council should be the central organizing body. Its membership should include at least the secretaries of all sections and affiliated societies, in order that the programs of these organizations may be considered in making up the general program. The council should meet for several sessions for general as well as routine business, one day before the public meetings begin. It should have at least one session after the close of the association meetings. Do away with council sessions during the public meetings of the association. Dispense with the formality of referring council action to the general session of the association for ratification.

Now use the evenings for general sessions, in which popular papers and addresses suitable for a general audience are presented. These papers should be short, not exceeding twenty or thirty minutes. Each section might be requested to furnish one such paper or address. Here the lantern might be used to great advantage. By such general sessions the chemists might be able to absorb a little botany, and the botanists a little chemistry, from masters of the subjects. The non-scientific portion of the audience would be benefited and instructed by listening to authoritative and yet non-technical accounts of certain scientific facts and theories.

With the council meetings and the general sessions out of the way the whole of every forenoon could be given to the meetings of the affiliated societies, and the afternoons to the section meetings. Here I should like to suggest that the chairmen of the sections should be elected two or three years before they are to preside, and that the place of meeting should be decided upon as long in advance. We now choose our section secretaries for periods of five years. The earlier election of chairmen would enable the officers to work out better programs.

In the making of section programs the chairman and secretary should *appoint* certain men to prepare papers or addresses. They should *invite* others to do so. This should be done a year or so in advance, in order that time may be given for the work. Then the sectional committee should *select* from the papers or full abstracts, at least two months before the meeting, only as many more papers as may be adequately presented in the allotted time. I like the rule of the London omnibuses which refuse to take more passengers than can be given places better than that which allows an indefinite number to crowd in and fight for even standing room. At St. Louis some of the best botanical papers were crowded out by others which were of little value. I can not refrain from saying again what I have said on more than one occasion before this, that while every man

who has anything to present should have it fully written out, he should not *read* it, but should present a clear, oral summary of it. He should have his matter so well in hand that he can give the audience a good notion of it in from five to ten minutes. Only on rare occasions should any one be allowed to take more than ten minutes, or read details from his paper. In St. Louis I listened to descriptions of details which were useless to present to any audience, since no one could follow them unless he had the object or a drawing of it before him. On the other hand, something should be said as to the duty of listening patiently to what certain men have to say. It is quite childish for men to yawn or even to quit the room because they are 'not interested' in a particular topic. Every man who is given a place on the program is entitled to a respectful hearing.

In regard to the time of meeting, I have first of all one complaint to make in regard to convocation week. When the matter was first talked of I understood that it was to come *after* the Christmas New Year holidays. In many states the state societies have met annually for many years during this week between Christmas and New Year's. It is desirable, if not absolutely necessary, that college and university professors should attend these local meetings. When convocation week was proposed, I supposed it was to *follow* the week already preoccupied by the state societies, but I find that this is not the case, and every winter I must decide whether to run away from the state meetings or to omit the association meetings. Convocation week should come a week later, or the state meetings a week earlier, than now.

As to whether we should meet twice a year or only once, I am inclined to accept Dr. Cattell's suggestion to have a big winter meeting alternating with smaller and less formal summer meetings. This will meet the geographical difficulty by allowing the two meetings to be held in widely separated parts of the country. Thus when the winter meeting is held in Philadelphia the summer meeting preceding or following it might be held in Minneapolis, Colorado Springs, Seattle or San Francisco. And so with a winter meeting in New Orleans, the summer meeting might be held in Portland (Maine or Oregon). I rather like the idea of two meetings because it helps to settle the geographical problems which confront us. The New Englander can scarcely be asked to go to San Francisco, for the distance is too great (although it is no greater than for the Californian to go to Boston). And we can not be expected to hold winter meetings in our far northern cities, nor summer meetings in the south. The two-meeting plan is a good one for this reason.

Lastly, it is evident that this will require a great deal of careful planning, in order that these beneficial results may follow. It will be necessary to fix upon the places of meeting several years in advance, and also to decide upon the general features of the section programs a year or so before the meetings.

CHARLES E. BESSEY.
THE UNIVERSITY OF NEBRASKA.

IT has seemed to me that in one respect the American Association for the Advancement of Science is drifting in an unfortunate direction, namely, away from its historic policy of attempting to keep in close touch with the general public and the younger students. A person who has had some scientific training and is interested in the work of the association has usually been admitted to membership if he desired to join. I believe the encouragement to the young student has been invaluable. It has brought young and inexperienced persons into close association with older men who are experienced investigators. The mere association and contact of the inexperienced with the experienced investigator has a great educational value for the former and it serves in addition to stimulate his ambition and to give him an opportunity to put in a word in the discussions or to offer his 'maiden' speech or paper, either one of which gives him better command of his scientific thought and is an encouragement to investigation on his part, with an ambition to offer something more worthy another time. Formerly there was great public interest in the

association and it was more active in interesting the general public. This may be due to one of two causes, or to both: (1) To the change from summer to winter meetings; (2) to the tendency to discontinue the former policy of 'science extension' work, and to the desire to federate the different scientific societies of the country.

With regard to the last question, however much there may be in favor of it, there are, I believe, grave obstacles in the way of securing a satisfactory federation even if it were desirable. There still would remain the definite field of work and the special problems for consideration on the part of specialists and investigators which have led them to organize distinct societies, with membership necessarily determined in some cases on a different basis from that of the American Association. Furthermore, such a federation would not be successful unless it practically included all the prominent scientific societies.

There seems to be a growing feeling on the part of many members that greater emphasis should be laid on the social features of the meeting, *i. e.*, the opportunity for the meeting of friends, for making new ones, and for friendly discussions. This is one of the most wholesome features of the meetings; but large meetings do not encourage this so much as smaller gatherings, for under the present system of making up the programs there are too many papers.

I believe the most successful field for the work of the American Association, since it is a broad and inclusive one, is that of dealing with subjects of more general scientific interest. If the programs of the different sections were confined to subjects of general interest, the papers on the program would be fewer, there would be more time and inclination to discuss them, and the interest would be greater. Printing abstracts in advance, as in the British Association for the Advancement of Science, would increase particularly the opportunity for discussion. More general papers would offer an opportunity for members of different sections to hear something of matters of general interest outside of their own specialty, and would make sectional meetings of greater interest to the general public. The interest of the general public in the work of the association has in the past been one of its aims as shown by the encouragement given to local members by placing them on committees and encouraging them to become temporary members, as well as by the lecture given 'complimentary to the citizens' of the place where the meetings were held.

I believe the American Association might be the means of doing a great work for science in the United States (which the special societies can not do so well) by emphasizing the social features of these gatherings, by emphasizing this feature of science extension in encouraging the interest of its members in the general progress of all departments of science, and by bringing it within the reach of the great mass of secondary school and academy teachers, as well as the educated public who are interested in learning the general results of scientific research. In this way the field for the special societies would be more clearly marked. Many of them would probably be glad to work generally in affiliation with the association, their papers of general interest to be presented before the sections, while each would at other times differentiate into their individual sections for the more technical papers, to which, of course, any member of the association or an outsider would be welcome if he chose to attend.

Then since SCIENCE is generally recognized as the official organ of the association its field might be directed more definitely to what might be the field of the association, and cease to publish matter which is not of general scientific interest, or at least cease to publish technical or special notes, which are more appropriately published elsewhere. SCIENCE is the medium for the discussion of questions of general scientific interest, for the publication of addresses or papers of general interest presented before the meetings of the association, and for bringing to its patrons weekly summaries of the important and interesting results of scientific research, discovery and travel. This latter feature should be as complete as possible, and SCIENCE would form a

weekly hand-book which few of us could afford to be without.

The season of the year when the meetings of the association should be held is, perhaps, one of the most difficult things to decide unless the knot is cut by adopting the suggestion made by Professor E. L. Nichols, that the association is large enough and strong enough to hold both a summer and a winter meeting. Winter meetings could then be held usually in a more southern latitude while summer meetings could be held in the northern states.

GEO. F. ATKINSON.

IT appears to me that the idea of effecting a union on lines of more or less close affiliation between the various scientific organizations of the country under the leadership of the American Association for the Advancement of Science is in many respects eminently wise and eminently desirable. Large bodies possess more power than small ones. This is the age of consolidation and combinations, and scientific men are not behind the leaders of industrial enterprise in recognizing the fact that 'in union there is strength.' It is to be borne in mind, however, that many of these scientific organizations are composed for the most part of specialists, whose sympathies are only to a very limited extent enlisted on behalf of the broader movement for which the American Association for the Advancement of Science stands. The object which many of the affiliated societies have in view in holding annual meetings is to permit friendly intercourse and the discussion of questions which only indirectly are of interest to the great mass of the membership of the larger organization. In these days of easy communication between all parts of our country the larger organization must hold out to its constituent sections and to its affiliated societies something more than mere sentimental considerations in order to hold these bodies in line with the general movement. Furthermore, the times and seasons adopted for the holding of general meetings must coincide with the convenience of at least a majority of the members of the constituent organizations; otherwise sooner or later these affiliated societies will fall away from the central group.

The idea represented in the movement for a convocation week seems to me theoretically admirable. It, nevertheless, appears to me that the selection of the time for meeting, which has been made, is somewhat unfortunate. There are some things that antedate in their origin, as we all know, the American Association for the Advancement of Science, and among them are the festivals of the Christian year. About Christmas center the joys of the home and of the fireside. In the business world, furthermore, the last days of the old year and the first days of the new year are generally devoted to the settling up of accounts and to the transaction of a vast amount of business, which is more or less engrossing and of genuine importance to men of affairs. People who have families do not care, as a rule, to absent themselves from their homes at the Christmas season. Bidding farewell the day before Christmas to the boys and girls who have returned to the roof-tree from school or college, for the purpose of undertaking a lengthy pilgrimage to a distant city in the interest of scientific discussion, reveals more of the 'martyr-spirit' than is common, except among old bachelors. Most scientific men, so far as my observation teaches me, who have homes of their own, are exemplary husbands and fathers, and while their devotion to science may be keen, they will not feel themselves called upon to neglect what appear to be domestic duties in order to participate in discussions which, it must be said, are often at most of minor and transient importance. I am quite firmly of the opinion that if convocation week is to be generally recognized, and the majority of our societies are to be led enthusiastically to favor gatherings in such a week, the time chosen should fall in the period of mid-summer vacation. The meetings of the American Association for the Advancement of Science and its affiliated societies, held in the summer months, have, as a rule, been eminently successful. The change to the mid-winter holidays seems to me, in common with a multitude of others, who have spoken to me, to be objectionable.

Personally, I desire frankly to say, that, as between staying at home at such a time in the cheerful society of my family and friends, and going to a distant city to endure the doubtful comforts of even the best hotel in the town, for the purpose of discussing the best method of combating the San Jose scale-bug, of collecting dinosaurs, or discovering the fossil fig-leaf aprons of Adam and Eve in the kitchen middens of Kilat-i-ghiljie, I will elect every time the former alternative, and I think I represent the sentiment of a very large number of gentlemen, who are honored by membership in the American Association for the Advancement of Science. We do not yield to any of our brethren in our devotion to science, but at the same time we have not yet come to that point where we are willing to sacrifice our known duty to our wives and children for the somewhat vague benefits of attendance upon meetings where at best we shall not learn much. I am told by one of the officers of the late meeting at St. Louis that very few persons were present at the meeting coming from a distance, except those who stood in some official relationship to the body, and who, therefore, felt compelled to be on hand. Those who were present, besides the official membership of the society, largely represented the local constituency. The reason for this is perfectly plain to my mind in view of what I have already stated. If the American Association insists upon meeting in the last week of the dying year the gatherings are likely to reveal moribundity as the years die in succession.

W. J. Holland.

Carnegie Institute,
Pittsburgh, Pa.,
February 25, 1904.

THE RAPHIDES OF CALCIUM OXALATE.

To the Editor of Science: In your issue of July 24, 1903, I gave a description of a phenomenon observed by Mr. B. J. Howard, of this bureau, showing the collection of the crystals of oxalate of lime in bomb-like cells in certain acrid plants, such as the Indian turnip. I beg to call attention to the fact that Dr. H. A. Weber in the *Journal of the American Chemical Society,* Vol. 13, No. 7, published some interesting data regarding the cause of acridity in certain plants. As the conclusion of his experiments he stated: 'These experiments show conclusively that the acridity of the Indian turnip and calla is due to the raphides of calcium oxalate only.' Dr. Weber's explanation of the destruction of acridity in certain cases where calcium oxalate crystals are found is interesting. He ascribes it to the presence of a thick mucilage, or in cases where starch is present and where boiling destroys the acridity he ascribes this loss of acridity to the production of starch paste. The mucilage and the starch paste serve to restrain the activity of the crystals and prevent them from entering the surface of the tongue and mouth.

Mr. Howard has found that the colocasia leaf, which contains but little starch, retains its acridity when boiled until the acicular crystals are destroyed. The same observation applies to the Indian turnip, which contains a notable percentage of starch. It is probable therefore in all cases that the acridity continues as long as the needle-like crystals are intact. On recrystallization in these cases the lime oxalate assumes the octahedral form and the acridity is not restored. It is only in case the crystals are very fine and sharply pointed that acridity is pronounced. Large and more bluntly pointed crystals produce little or no effect.

Dr. Weber describes also the investigations of Professor W. R. Lazenby on the occurrence of crystals in plants, and states that Professor Lazenby is of the opinion that the acridity of the Indian turnip is due to the presence of the crystals of calcium oxalate. It seems only proper in this connection to call attention to these earlier observations which the experiments described in my letter of the above date fully confirm.

H. W. Wiley.

THE TERM 'BRADFORDIAN.'

To the Editor of Science: On page 24 of the current volume of Science, January 1, 1904, Dr. G. H. Girty is reported as having proposed the term Bradfordian for transition beds between Devonian and Carboniferous. It is not quite clear whether he intends the term