

# SCIENCE

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## THE PRESENT AND FUTURE OF THE AMERICAN CHEMICAL SOCIETY<sup>1</sup>

IN view of the far-reaching changes in our society that are to inaugurate the new year now at hand, it seems to me that no more fitting subject for an address on this occasion could be chosen than one which should present to our members a statement of its present condition, the reasons for the changes undertaken, the importance of these changes to all the chemists of North America, and the need of the loyal support of our present membership at the start in securing the structure of the greater edifice upon a firm and enduring foundation, so that a powerful organization may develop for building up the profession—an organization that shall be fully worthy of what may become, as has been predicted, the future stronghold of chemistry. This presentation seems specially called for at this moment, since the existing situation and what it is hoped to accomplish by the proposed changes are not fully known to a large proportion of our members, particularly that portion that is remote from the larger industrial and educational centers and unattached to our local sections. And

<sup>1</sup>Address of the president of the American Chemical Society, New York meeting, December, 1906.

since the future develops from the present, and it is the future, though inseparable from the present, that holds most of interest for us now, I will call my theme 'The Present and Future of the American Chemical Society.'

The desirability of assembling all chemists in a single strong organization would seem so manifest as to be beyond the need of argument for its support, and the whole drift of the present address will conform to this postulate. In the words of a correspondent, "If the profession of chemistry is to reach and maintain the distinguished position which it ought to have in this country, it must do so by presenting a united front and combining in its membership practically all who are engaged in any branch of chemical work." And again, "A person who joins the American Chemical Society should not have in view solely his personal interests. He should first have in view the interests of the profession. His membership is a patriotic duty and not a personal perquisite."

But without specialization few advances would be made. Specialized societies are, therefore, excellent and to a certain degree necessary—and to this point I will revert later—but it would seem as if they would be most effective as adjuncts of a major organization which should include all chemists. It is a mistake to think, as some apparently do, that the chemist in one line of work has little to learn from those laboring in different fields. All owe their success to the application of the same fundamental facts and theories, and discovery in one field may have most important bearing at a point seemingly remote. Deep specialization is vital and inevitable; but he who while performing his own particular task at the same time endeavors to keep in touch with the general trend and progress of the important work in his profession will be in advance of the man who reads

none but his own special journals and waits for the text-books and manuals to bring him the belated knowledge which might have been his much sooner.

The foregoing lines were written long before the opening of the new Harvard Medical School on September 26 of this year, and it was, therefore, pleasing to read in the address of Dr. Wm. H. Welch, delivered on that occasion, the following expression of his opinion: "Specialization \* \* \* is demanded by the necessities of the case and has been the great instrument of progress, but the further division is carried, the more necessary does it become to emphasize essential unity of purpose and to secure coordination and cordial cooperation of allied sciences." This was said with particular reference to the many specialized branches of medical science.

Again, from the same address: "How disastrous may be to medicine the loss of the sense of unity in all its branches has been clearly and admirably shown by Professor Allbutt in depicting the effects which for centuries followed the casting off from medicine of surgery as a subject unworthy the attention of the medical faculty. Thereby internal medicine lost touch with reality and the inductive method, and remained sterile and fantastic until the day of Harvey, Sydenham and Boerhaave."

That the application of these statements to our own profession will be self-evident to most of its followers is my hopeful belief.

Such a general organization as that alluded to, broad in its scope and progressive in its administration, not only maintains and adds to the dignity of the profession at large, but also helps the individual in more ways than one. The opportunities which it affords by its general meetings for seeing, hearing and becoming acquainted with the foremost men in all lines of work appertaining to the profession, are

not to be had elsewhere. The chances for young men to become known of their fellows are equally good. The young member may, it is true, at his first or second attendance, feel somewhat lost and out of place, but if his countenance is seen frequently, and especially if he soon presents a paper of merit, he becomes known, makes acquaintances wherever he wishes, and derives from scientific conversation and social intercourse with his fellows the full and stimulating benefit these meetings are intended to afford. I know of few greater satisfactions than the talks over problems and difficulties with a worker along like or kindred lines, all the more, perhaps, if he chance to be a new acquaintance. Narrow-mindedness and intolerance are evils which are mitigated by rubbing up against one's co-workers and finding out their different points of view. The suggestions and helps to be given and received constitute benefits to be derived from these meetings whose value is properly appraised by those who know how to profit by them, but is by too many, unfortunately, much underestimated. The older men can contribute greatly to the success of such gatherings if they come prepared to meet more than half way the perhaps diffident approaches of the younger generation and ready to part freely with information and hints drawn from their long experience. I believe this is the spirit in which most, if not all, of the older men do come to these meetings, but the younger ones must be reminded that although their seniors may have the best will in the world to help, they can not possibly do so unless they know who need help. Therefore, the younger members must not be backward about making themselves and their wants known.

In all of these ways the reorganization of the American Chemical Society in 1890-3 did much to forward the cause of chemistry in our country, aside from pro-

viding an organization representative of the profession and a medium worthy of respect at home and abroad. The low dues which it seemed necessary to levy at the start and the lack of an endowment fund, however, made it impossible to provide the needed detailed information in all branches, even in the form of abstracts relating to the advances of chemistry in the world at large. It was possible to cover only the home field, and that not fully until 1902. Notwithstanding that this field has been well covered in the main since that date, the inability to offer more has been a most serious obstacle to the full development of the society, one which, if allowed to operate too long, must inevitably lead to its deterioration and eventual disintegration. For our members all need to know what is being done abroad. Through our own inability to afford this knowledge, they must seek it in foreign publications, which, besides covering the foreign field, give accounts of much of the work originating here. If our members have not access to certain public libraries or to those at educational centers, their only recourse is to subscribe at considerable expense to other publications than that of their own society. To the young worker, this additional sum, while absolutely inconsiderable, is sufficient oftentimes to turn the scale of his indecision in favor of the foreign publication or society as against the local one which patriotism would naturally lead him to prefer. The result has been that while our society has continually prospered and increased numerically, until its membership now exceeds 3,000, making it perhaps the third among existing chemical societies, it has failed to attract to itself anything like the number that properly should be attached to it. The total number of chemists in this country is probably fully double that enrolled in our membership. It has even been placed at 8,000. Of these some,

but by no means the larger number, belong to other organizations. Very many are unattached. For one reason and another, we have failed to attract these, most of whom are unquestionably connected with the technical industries. And it is among these technical members of our society that a spirit of discontent has been most pronounced. Numerically they constitute probably a majority of its membership. That this discontent should exist particularly among technical men is not surprising when we consider the conditions under which they work as compared with those of the educators and their students. The latter either possess themselves, or have access to, all or much of the world literature that they need; the former are far less favorably situated in this respect, and it is to them of the utmost importance that their society should provide through its publications the power to meet all ordinary emergencies and to rise above provincialism.

The spirit of discontent to which I have referred has been manifest for some years. It has not been due altogether to the want above specified, but is in part chargeable to certain other conditions to which I shall refer later. It has manifested itself thus far in the formation of new and independent societies of specialists and in the growth of others already existing. The fact that these organizations have come into being and find continued support and that new ones are contemplated is evidence in a general way that they are needed, or that our own society does not offer all that it should. For the best interests of the profession at large, however, it seems very unfortunate that its power for good should be diminished by degrees in this way, for it is undeniable that for chemistry as a whole much more can be accomplished through union of all chemists than through many independent organizations, some

weak, few strong, the weaker ones fated to a hard struggle and destined to accomplish unaided far less than they might as members of a strong general organization.

As a first step toward improving the situation, it was early recognized that we should endeavor to provide for our members complete abstracts covering the whole range of chemical literature.

In the matter of chemical abstracts taken as a whole throughout the world, it has long seemed to many that there was an excessive waste of valuable time, labor and money, in their preparation. The same work is repeated in several languages and sometimes more than duplicated in a single tongue. Cooperation on an international scale, each country preparing its own abstracts and exchanging with other countries through a sort of clearing-house bureau, would obviously be the ideal solution of the problem, but quite as obviously an ideal that would meet with difficulties too great to be overcome at one stroke. It would be simpler to begin by securing cooperation between English-speaking countries, and earnest efforts on our part have been put forth with this end in view during the past few years. It is unnecessary to follow here the steps taken, or even to outline the tentative propositions formulated and urged, chiefly by our editor. Suffice it to say that success was not achieved, and it became clear that we should have to rely on our own unaided efforts and add to the existing duplication of abstracts if we wished to approach the ideal in our publications and make them of value to all chemists.

This end is attainable with sufficient money at command and with the right minds to plan and organize. The last condition is more readily met than the first, without which, however, success is beyond reach. Recognizing this clearly, the council a few years ago directed the appoint-

ment of a committee on endowment fund, which should canvass the situation and endeavor to devise means for the creation of a fund to aid the abstract project without rendering necessary any, or, at any rate, a great increase in the society's dues. The committee's efforts have thus far been without effect.

Less than a year ago one of our technical chemists wrote me with regard to the feeling and attitude of industrial chemists towards our society. The letter was decidedly pessimistic in tone, and the writer claimed to voice a feeling which was only partially justified by the facts as to some of the causes of dissatisfaction enumerated, and one or two of its statements were founded on misapprehension. It contained, however, much food for thought, coming as it did from one claiming to know the sentiment in his section of the country among men in the technical industries, who constitute, as before said, probably the larger part of our membership. Inquiry in various directions, chiefly in the large industrial centers, confirmed the charges in their main features and showed the existence of a wide-spread feeling that demanded immediate recognition.

The council directed the appointment of a committee of six technical chemists, with the president as an additional member and chairman, which should reduce to specific terms the wishes of this large body of men, so far as they could be ascertained, and present them for consideration to the council at the Ithaca meeting. This was done. The committee was selected with a view to securing the advice of men prominent in the technical branches, men of acknowledged reputation, some of whom had been active in expressing dissatisfaction with existing conditions, yet supposedly open-minded men of ideas, able and willing to look at the question fairly from all sides and hence free from narrow prejudice.

The committee consisted of the following members in addition to the chairman: G. E. Barton, Geo. D. Chamberlin, A. D. Little, J. D. Pennock, T. J. Parker and W. D. Richardson. It may be said that the bringing together for this purpose, from widely separated parts of the country, chiefly from the great industrial centers, of men representing varied industries, has been and will be productive of good results in more ways than one. By interchange of views among themselves, and by conversation with others, they were enabled to ascertain the feeling in different sections of the country, and by contact with the governing body in one of its sessions, any possibly preconceived opinions regarding the hostility of that body or of individuals in it toward the technical side of the profession surely became dissipated. They were able to return to their homes and to disseminate a truer view of the situation than had before existed.

Before taking up the recommendation of the committee it will be well to review in detail some of the causes of discontent that were found to exist, as well as portions of the discussion arising from their presentation.

These were mainly set forth in the letter from the correspondent above referred to and related almost entirely to the character of the *Journal*. It may be said at the start that in the search for complaints, almost no objection was raised to the contents of this publication. It was freely admitted that what it contained was of good quality and there was little, if any, complaint that worthy matter had ever been rejected. The opinion was held in some circles that much of the matter emanating from government laboratories and experiment stations, which finds duplication in national and state publications, might be omitted in favor of matter less favored in this respect. The chief criti-

cism related to omissions. It was held that probably the majority of the society membership followed the technical industries and, therefore, should receive an even share of consideration in the make-up of the *Journal*, whereas by far the larger space was devoted to contributions from, or of chief interest to, those outside the technical branches.

As a corollary to this criticism, it was maintained that the technical side of the profession was inadequately represented in the governing body of the society, and quite as much, if not more so, in the control of the *Journal*.

It would seem that the remedy for this alleged lack of due representation in the council lies largely in the hands of the complainants. It is well known that a sufficient number of votes in nomination of councilors from local sections or of councilors at large to entitle the candidates to recognition in the final ballot, can be procured only by prior agreement among a considerable number of members to unite upon certain suitable persons. As this agreement is most readily reached where many members live in close proximity, it follows that the larger sections can and do exercise a controlling influence in the choice of councilors at large. Most of the larger sections are located at centers of great industrial activity, and industrial chemists doubtless constitute a majority of their membership. The remedy is, therefore, apparent, if unison in choice is attainable. It must be borne in mind, however, that in order that good ultimate results should follow concerted action of this kind, no spirit of class feeling should be allowed to dominate in selections made either on the part of technical members or of those following science in the fields of education or pure research. The spirit of broad fraternity should have free play and both sides should be willing to recognize the rights of the

other and to select from the ranks of either the most deserving, irrespective of their particular fields of work and without seeking merely numerical preponderance. It goes without saying that the present dominating influence of one side in the council, so far as numbers go, has not been the result of intention, but has come about mainly from natural conditions. Several of the local sections are located at centers of educational activity where relatively few members are industrially engaged, the result being that educators naturally represent those sections in the council. In this connection, the policy should in general be consistently followed of electing as councilors at large those who through their works have become widely and favorably known to the profession, thus reserving these positions as rewards for repeated achievements of a high order.

The written discussion brought about by the above reference to the paucity of original contributions from technical chemists deserves some consideration by itself.

The original critic asserts that the controlling class, composed of professors and government and experiment station chemists, finds its needs fully met by a journal of the "type of that of the London Chemical Society and feels that the admission of most other matter would be lowering the grade of the journal, while the other class needs a journal like that of the Society of Chemical Industry," and that 'the only way to retain the two classes of members is to give the publication a dual character' with separate editorial boards. Coupled with this latter suggestion is the question whether a somewhat different standard should not be applied in the consideration of papers submitted for publication, in order to meet the wants of a class of chemists doing routine work, to whom chemistry, in the words of several high in technical circles, is a 'trade, not a

profession,' whose chief demand is for 'methods and many of them' relating to their restricted work only, and who will not avail themselves of general literature, though it may be freely offered for their use. The problem as to this class is difficult, and one writer sees no solution 'except through a selected membership and increased cost of the *Journal*,' for 'printing more high-class technical papers would not help the matter much.'

A further quotation from the letter already mentioned may be given to show the feeling of the writer at the time, and, as he claims, of others, and as bearing on the question of a fair standard of excellence for papers submitted for publication. "If a man attains a chief professorship in a small college or a junior professorship in a large university, I doubt very much whether he has exhibited any higher ability than the technical chemist who maintains himself in a position where he has approximately the same number of assistants," a belief which is perhaps justified. He goes on to say: "Either a just scale of relative attainment must be recognized or two societies must naturally result, and I am convinced that the narrowness of a large portion of both the industrial and teaching chemists of the country will finally compel a separation, whatever is done. However, if an attempt is to be made to keep what is two societies in other countries in one here, I think that an independent committee composed of works chemists alone should be appointed to investigate the whole subject of inducements to works chemists to contribute to the *Journal* and to formulate general principles as to what should and what should not be considered high-class technical matter. \* \* \* If the colleges would take the initiative and develop some plan of co-operation similar to that proposed by Mardick on pages 133-138 of the *Chemical*

*Engineer* for January, 1906, there would be more hope for the American Chemical Society getting along without a split."

It is doubtless true that the feeling of narrowness referred to in the foregoing extract exists to some slight degree among both educational and industrial chemists. There is among a small section of those connected with educational institutions a preference for a society based on a high-grade membership and this feeling finds its counter expression among some technologists who are so shortsighted as to think they have no need for the worker in non-technical lines. The feeling is, however, far less strong than it was a few years ago, and is destined, I think, to complete eradication. To this end, the best efforts of the conservative members of both classes should be persistently and strenuously directed. It should become the fixed policy of the society to foster cordial relations among its members and to manifest a spirit of the broadest liberality in the enactments of its governing body. At the same time, those engaged in industrial pursuits must always remember that although they equal in number the educators and their students, or may even form a majority of the society, it is none the less true that the former are and no doubt will continue to be the greater producers of new and original matter, and hence be deserving of greater consideration in proportion to their numbers than those who are less productive. It is the new in chemical science that makes possible industrial advance, therefore the fullest consideration should be shown those who by their discoveries in pure science may thus be laying the foundations for future industrial enterprises. It should be immaterial whether this comes more largely from one class of workers than from another.

On one point referred to in the discussion—that relating to the unwillingness of

some works chemists to avail themselves of opportunities offered them for acquiring a broader knowledge of their profession through its current literature—little need now be said. It is a situation that will ever exist so long as human nature remains what it is and educational institutions graduate low-grade men without other ambition than to earn a bare livelihood and unwilling to endure the arduous labor that must accompany earnest efforts to climb the ladder of success.

The question of applying a different standard for different classes of papers may also be left for the present. It is a point on which the committee on relations of the society to technical chemists made no recommendation. It is also a question of much delicacy, the solution of which will work itself out in the next few years, as the development and differentiation of the society's publications progresses.

The criticism that a majority of the articles appearing in the *Journal* of the society are of a non-technical character and that the educators and government chemists, through their control of the *Journal*, crowd out articles of a technical character, is as to the second point quite incorrect, and as to the first, open to a very simple and natural explanation. No article of merit has ever been intentionally declined by the committee on papers and publications, and those of a technical character have always been welcomed. It is possible that in a very few instances mistakes of judgment have been made, but this applies to papers relating to other lines of work as well as to those offered by industrial chemists. But even so, this is only an inevitable result of the fallibility of human judgment.

I have taken the trouble to tabulate the contents of the *Journal* for the eleven years preceding 1906, dividing the papers into three classes, namely, those relating to (1)

agriculture, biology, etc.; (2) pure chemistry; (3) analytical and applied chemistry. No two persons would prepare identical lists because of the difficulty in classifying many of the papers, especially those on the border between agriculture, biology, etc., on the one side, and applied science and analytical methods on the other; therefore, I will not reproduce the table. Its main features, however, may be indicated, confirmed as they are by those of a similar table prepared by the editor, but covering only the years 1895, 1900 and 1905. It is shown that the agricultural and biological branches taken together stand about where they did eleven years ago, without appreciable increase, so they need not be further considered. It is further shown that although the number of papers in analytical and applied chemistry has increased in the last semi-decade, there has been a marked decrease as compared with the number published eleven years ago, and that the increase in papers relating to pure chemistry has been very marked in the last four years, but had experienced no increase in the seven years preceding and had undergone but slight fluctuations during that period. It may be said that some of the papers in analytical and applied chemistry listed for 1895, the year of greatest productiveness in those fields, were quite brief and unimportant, yet there has evidently been an absolute decrease as to number, though perhaps an improvement in quality. Whether the decrease is in any way attributable to the application of a higher standard of requirement can not be determined with certainty. It is most likely that the chief cause is to be sought in the inducements offered by the columns of journals devoted wholly to the applications of chemical science. On the other hand, the marked increase in papers devoted to pure science, so called, finds its chief and natural explanation in the rapid



growth of our educational institutions and of the facilities for prosecuting research therein. This leads to a consideration of a further cause for the comparatively slight increase in technical papers in the last five-year period. The student and his instructor have absolute freedom in the matter of publication, subject to the one limitation of a satisfactory standard. The industrial chemist, on the other hand, is hampered and restricted by the unwillingness of most employers to make public the discoveries originating in their laboratories. This policy is apparently quite as firmly adhered to at the present day as in former times, and acts as a very real deterrent of publication of the work of chemists thus employed. Their discoveries are not their own property, and if made public often appear in the guise of patent specifications, in which are embodied the results of a vast amount of chemical work, much of which never gets into print in any other form. For this reason, such comparisons as are shown by the table above referred to may not be altogether fair to pure science. A just comparison should take account of the work embodied in the ever-increasing number of patents applied for. If this could be accurately determined, the ratio in the quoted table might not seem at all disproportionate. Nevertheless, there has been a marked disinclination on the part of many technical chemists to publish in our *Journal*, and this disinclination it is the purpose of the management of the society to remove if possible. How this is to be done will now be considered.

From the foregoing it is apparent that the chief cause acting against the fullest development of our society is the dissatisfaction of a large number of our technical members with present conditions, which chiefly relate to the *Journal* of the society.

The committee already referred to as having met at Ithaca last June for the

purpose of formulating the wishes of the industrial chemists, offered a number of suggestions which have already been published in the *Proceedings*, pages 57 and 58. These received the favorable consideration of the council, at whose deliberations the technical members of the committee were present by invitation, and they are in substance as follows:

1. That publication in full of all official methods adopted by official organizations the world over be made in the *Journal*.

2. That the present reviews, covering the general advances in chemistry, be continued.

3. That for the benefit of that class of technical chemists whose environment tends to cause them to regard chemistry as a trade rather than a profession, 'an attitude which can not fail to react unfavorably upon the individual and the profession at large,' something may be accomplished by the publication of high-class articles from recognized authorities, treating of the advance and outlook in the different fields of chemistry. These will differ from the reviews heretofore published and to be continued in that they shall deal with broad conclusions and the trend of thought, and be so written as to be of general interest and calculated to keep all members in touch with the more important developments in the different fields of chemical work.

4. That the foregoing articles shall be supplemented by other general statements, similar to those that have from time to time appeared in the *Journal*, showing the progress, from a chemical standpoint, of special industries. By endeavoring to obtain these through direct application to manufacturers' associations covering special industries, it is thought that closer cooperation between manufacturers and the society, of mutual benefit to each, might be secured.

5. That the whole field of chemistry the

world over be covered by abstracts, so far as the financial condition of the society will permit, and that to meet this extension an increase of dues be made, if necessary.

6. That an earnest effort be made to secure a greater number of technical papers from technical schools, with special consideration of the propositions of Mardick in this direction already referred to.

7. That the committee on papers and publications be increased by the addition of two technical chemists.

The last of these recommendations goes into effect probably with the coming year. Numbers 1-4 and 6 will doubtless be followed, as heretofore in the case of those already in operation, and gradually adopted in part if not wholly in the others. The remaining and most important recommendation, that for abstracts to cover the foreign as well as home field, had already been practically decided on by the council after careful review of the ground by the editor, and merits extended consideration.

Few, except those who have been in close touch with the working out of such an undertaking as an abstract journal to cover all languages, can realize the magnitude of the task, the multiplicity of points to be taken into account, and the results of neglect to pay due regard to matters that at first thought may seem to be of minor moment. First there was the form of publication to be considered—that is, should it conform to the model hitherto followed, or should the journal be divided into sections, each devoted to a special branch of chemistry and followed by the abstracts pertaining to that branch, or should a special abstract journal be issued; and whatever the decision in this regard, should the publication or publications be issued at monthly or semi-monthly intervals. Coupled with these matters were those relating to size of page and cover, color of covers and inserts, matter to appear on the several

pages of cover of one or both publications, advertising rates, subscription price, the drawing of specifications for the guidance of bidders and of a contract for the successful one.

While these questions were still under consideration a plan had to be carefully outlined for collecting and properly classifying the abstracts, involved in which were minor details of abbreviations to be used, both for titles of papers and of certain frequently appearing data in the text, of directions for the guidance of abstractors, etc. A list of journals, proceedings of societies and other publications must be carefully prepared and arrangements made to secure these by exchange or otherwise if the editorial office did not already have access to them. Then, most important of all, came the selection and securing of a competent staff of abstractors, with suitable men to take charge of special divisions and to be responsible for the work of those associated with them, for many fields are far too wide to be covered by a single man. This question was rendered specially difficult by the lack of eligibles who are acquainted with some of the less familiar foreign languages. Hence the need in a few instances of correspondence with distant lands in the hope of securing, if possible, some one there competent to attend to the publications of his land and able at the same time to write abstracts in English. A further element of difficulty here arose, that few, if any, are sufficiently at home in all fields of chemistry to be able to prepare satisfactory abstracts in them all, a difficulty which was also encountered in those cases where a competent man is available here at home for certain fields of work in a little known foreign tongue, but not in others, and the man for these others is not to be had. Often, too, appeared the need for finding some one in a particular city where alone, perhaps, certain publications

are to be had that are likely to contain matter of interest to chemists. Particularly is this true in my own field of mineralogy and geology. Very many of the publications to be drawn upon, if this field is to be properly covered, are accessible only in the city of Washington, and most of these only in the library of the geological survey.

It will thus be seen what a task devolved on the editor of the *Journal* when the publication of an abstract journal was decided on. The time will undoubtedly come when the society must employ, at a good salary, a man whose whole time can be devoted to editing the society's publications, for they will demand all of his time. An alternative would be to continue the present plan, but to relieve the editor of all but supervisory labor by furnishing him with adequately paid and competent assistants. As it is, the editor has been obliged to engage an associate to share with him the arduous labors that have fallen upon his shoulders. And here I can do no less than testify to the patient, unwearied efforts and painstaking care bestowed by Dr. Wm. A. Noyes in planning for the new publication. This I can do the more authoritatively from having been in active cooperation at close hand with him throughout the past year. He has been heartily aided in the way of advice on many knotty points by the members of the committee on papers and publications and the present corps of abstractors, as well as by others, but the great weight of the task has devolved upon him, and I trust that our members will give him due credit for what appears to them good in the results attained, and withhold judgment if there be defects. That there will be mistakes to rectify and omissions to make good is to be expected, for such an undertaking can not spring into full fruition at once; it must be given time to de-

velop; premature judgment must not be pronounced.

I will not present to you the divers reasons that influenced the decision of those in charge of the matter in their choice of the form the society's publications should take. The result has been made known to all. I will, however, briefly repeat that the *Proceedings* and *Journal* of the society will appear monthly as heretofore, and will include reviews of all kinds. The abstract journal, to be known as *Chemical Abstracts*, will issue semi-monthly and will be given up wholly to abstracts. These abstracts will naturally not be so full or so complete as is desirable, but the best will be done that our means allow and 'improvement' will be the watchword from year to year. It is altogether probable that we shall finish the first year or two with a deficit, hence the obvious need that our present members should stand by the society and endeavor to add largely to its numbers. A large proportion of our membership—that engaged in educational centers—has access to existing abstract journals covering all fields of work. They are hence, as a rule, in no special need of additional abstracts, and I wish my technical friends to bear this well in mind and to give due credit to these many members who, although their wants are largely met by existing conditions, have yet readily consented to an increase of dues and in many cases have taken on themselves the preparation of abstracts out of sheer loyalty and a desire that those who are less fortunately situated may reap the fullest benefit that the society can offer. I can not refrain from mentioning also the fact that in some quarters where at least indifference might have been looked for, not only was this feeling not apparent, but, on the contrary, the proposed changes excited a satisfaction, I might almost say, enthusiasm, that was in the highest degree encouraging.

I have said that while we shall aim to cover the whole field of chemistry, the work can not be done so fully or in such detail as we could wish, simply for the reason that our means are still insufficient. It will be necessary to condense in some fields, except as to articles that appear in less known languages and in the less accessible publications. Unimportant articles and those which relate to local matters of little or no general interest, or which are of a statistical nature, will receive but brief notice or be mentioned by title only. At the start, it will be impossible to cover the ground fully because of the enormous number of publications concerned and the inaccessibility of many of them. But as the undertaking becomes systematized and the society grows—and it is my firm belief that it will rapidly grow if the present membership gives it the loyal support asked for and thus supplies the means for development—the weak spots will be gradually mended. To adequately cover the ground, however, a far larger fund than that afforded by the increased dues must be available. If the present experiment is successful in accomplishing the ends aimed at, it is felt that we can go before the public that is able to give and ask for large contributions to a permanent publishing fund with far better grace and prospect of success than was possible before we had shown our willingness to help ourselves as far as circumstances permitted.

If the project for a Perkin Library in the city of New York, with its salaried staff, becomes a reality, it will help much to supplement a lack of fullness that our abstract journal may show, for many of our educational centers are weak in library equipment and very many of our industrial workers are far removed from libraries of any kind. It is proposed that the Perkin Library shall be in duplicate, so far as possible, so as to permit the loan-

ing of books to applicants in any part of the country, and also the furnishing of more detailed information as to the contents of any particular article or series of articles, which our abstracts might fail to afford.

Having thus outlined the somewhat critical situation in our society and the steps thus far taken to counteract tendencies fatal to the society's fullest development, let no one cherish the thought that other difficulties will not arise that will demand the most careful leadership. The chief of these, perhaps, can be readily foreseen, for it has already manifested itself in the formation of independent specialized societies. It is the belief of myself, and probably of many others, that this tendency is one which in itself should not be unduly restricted, but that it should be guided along lines most conducive to the welfare of all concerned, that is to say, the differentiation of the society into special sections should be regarded as a result desirable in itself because inevitable and therefore to be considered as a part of the general policy of the society, to be kept constantly in view and acted on as circumstances demand. In the opinion of most of our members, the time is not yet ripe to inaugurate such a policy, though circumstances have arisen which may make it highly desirable to begin very soon. Premature departure in this direction on a large scale, however, would be ill-advised and unsafe. The society must first be placed on a basis so firm and secure that success will be assured from the start. It is necessary to gather into our fold a much larger membership than we now have, and no step that we can take to bring about this increase will, in my opinion, be more effective than the formal expression by the society of its adoption of this intention as a cardinal article of its fixed policy. A natural result would be that existing spe-

cialized societies would in all probability consent to become members of the greater organization.

This consolidation of independent specialized societies is wholly in agreement with modern evolution and has been accomplished already in other fields. The American Medical Association is such an organization of affiliated societies of all branches of medicine, and arrangements are in progress not only to bring together in a similar union all the medical societies in London, but further to add to the number by the formation of new sections as occasion arises. The degree of independence to be accorded the subordinate sections may well be left to future determination, but some such plan as that proposed for the London societies seems entirely feasible and proper. According to this each section shall be self-governing as far as possible, and shall have direct representation in the general council and editorial board, but its expenditures shall be subject to the control of the financial committee of the general society, and, further, the general management shall be controlled by a council consisting of the president, the presidents of the sections and the usual associates.

When such an organization is accomplished by us, it will doubtless be with the extension to the sections of the right to hold meetings when and where they please, limited only by the condition that one meeting in each year shall be in association with the whole body of affiliated societies. A preliminary step in this direction, which seems to work well, has been the adoption at our meetings of the practise of holding sectional meetings in addition to the general concourses participated in by the society as a whole. A prominent feature of these general gatherings might be the presence by invitation of one or more distinguished foreign guests. This

feature would, I think, contribute not a little to the success of the meetings in more ways than one. It might, for instance, attract the attention of more of our countrymen at large to the importance and dignity of the science, and arouse for it and its aims a degree of interest and respect that sadly needs stimulation.

It is not to be understood that in the proposed differentiation of the society along these lines, our present local sections would be dispensed with. They fill, and doubtless will continue to fill, a most important field of usefulness.

Inseparably connected with this differentiation into sections is that of the eventual gradual development of the journal of the society, a project which should become no less a part of the general policy of the society than that of the formation of sections. As the society grows and chemistry develops, a single journal will become more and more cumbersome and unwieldy, and division must result. A short step toward this end has already been taken in the arrangement of the papers we now publish, all those relating to the major subjects being grouped together in each number of the journal; but this limited separation will soon fail to meet our needs and separate journals devoted to special subjects will be a further step in evolution. It is far better that these should be published by one powerful central organization than that they should be independent, for by reason of the greater economy resulting from centralized management more can be accomplished and offered than by the independent efforts of unaffiliated societies. One correspondent writes, "I believe that natural evolution of the American Chemical Society will be along these lines, namely, the organization of special societies with special journals, as affiliated bodies of the American Chemical Society receiving the common journal. The spe-

cific articles and abstracts relating to each individual branch will be found in a special journal." It is, of course, implied that so long as the members in a special field are too few to warrant the publication of a special journal, the papers relating to those fields would continue to appear in the common journal, which would otherwise be devoted to the proceedings, reviews and papers of general interest. It may, however, be seriously questioned if the separation of abstracts in the manner indicated would be advisable. It were, in my opinion, far better that these should continue to appear in a special abstract journal which should, like the common journal, go to all members. Those desiring could then subscribe, for a moderate sum, to such of the special journals other than that of their special field as they would feel able to afford.

Less closely related to the future of the society as a society is a matter—already laid before the council at Ithaca, but tabled without action—that must, however, sooner or later engage attention. This has to do with the question of compensation paid for chemical services and the reflection that is cast on the profession at large by the utterly inadequate recompense that is commonly offered and, of necessity, accepted. This is far below what the properly educated chemist should receive, considering the time and money spent in acquiring his education and the extent and variety of the knowledge that he must master at the start and accumulate so long as he practises his profession. In so far as this question has to do with regularly salaried employees, the solution is perhaps more troublesome than in the case of those performing special services, such as analytical work, and that phase of it I shall not consider. A serious obstacle to be overcome before analytical chemists can occupy the position in public estimation that should

be theirs, is that presented by shysters, posing as qualified chemists, particularly as analytical chemists, who seek and accept work at rates so low as absolutely to preclude accuracy in the results they obtain, so that the whole profession suffers for their misdoing. That these men are able to attract customers may be due to the greed of both employed and employer, but is in larger measure due to the ignorance of the employers as to the real nature of chemical work. It will be difficult, if not impossible, to educate the public in chemistry, but it would seem as if a partial solution might be reached by establishing some such standard of efficiency as that represented by membership in the Society of Public Analysts in Great Britain, which should be a guaranty, so far as such things can be guaranteed, that the member is a duly qualified analyst. Such an organization might well be established here, and it need in no sense compete with any other existing organization, nor need it call for more than nominal dues. Its membership should be most carefully guarded and any member showing himself unworthy should be summarily dropped. Such action would be *prima facie* cause for similar action by the American Chemical Society with respect to the culprit, if he possessed membership in that society. Membership in that organization would then be a reasonable guaranty to those wishing work done that it would be well done, and the rates of compensation could be maintained at figures commensurate with the quality of the work. Those patronizing non-members would then have but themselves to thank if disappointment and loss resulted from so doing, and they would soon learn, as so many others have learned, that cheap work is usually bad work.

In the foregoing, I have endeavored to outline the present situation with its existing complications and some of the sug-

gested remedies, in so far as concerns the future of our society considered by itself. It may be permitted me, however, to look still further into the future, and to see therein the possibility of a yet wider affiliation than that already discussed, that of the several grand divisions of natural science, on a basis somewhat different from that now obtaining in the American Association for the Advancement of Science, an affiliation in which the American Chemical Society, by reason of its numbers and the importance of its field, shall occupy a most prominent position. Whether or not this vision is ever to come true, we should all work in harmony to the end of the formation of a grand organization of chemists that shall be a power for the greatest good to the profession and to mankind.

W. F. HILLEBRAND

U. S. GEOLOGICAL SURVEY

THE THIRTEENTH ANNUAL MEETING OF  
THE AMERICAN MATHEMATICAL  
SOCIETY

THE thirteenth annual meeting of the society was held in New York City on Friday and Saturday, December 28-29, 1906, forming a part of the general gathering of scientists in attendance at the meetings of the American Association for the Advancement of Science and the numerous affiliated societies. With this environment went a noticeable increase in attendance, over eighty members being present at the four sessions. Friday morning was devoted to a joint session with Section A of the association and the Astronomical and Astrophysical Society, Professor Simon Newcomb presiding. A large audience listened to seven papers from the fields represented. The remaining three sessions were somewhat crowded with the regular program, to which were added several papers from Section A. The great productive capacity of the society is rapidly

making it a serious problem to provide adequate facilities for presentation and discussion of the output.

At the afternoon session on Friday Professors E. B. Van Vleck and Morley, and on Saturday President White, Vice-President P. F. Smith and Professor Morley occupied the chair. Owing to the recent illness of President Osgood, the presidential address was not delivered; it is hoped that it may be given at some future meeting.

The council announced the election of Mr. E. I. Shepard, of Harvard University, to membership in the society. Eight applications for membership were received. The organization was authorized of a new section of the society, to be known as the Southwestern Section. (A preliminary meeting of the proposed section was held at Columbia, Mo., on December 1.) It was decided to hold the next summer meeting at Cornell University. An amendment of the constitution was adopted by which the editorial committee of the *Transactions* is included in the council.

At the annual election the following officers and members of the council were chosen:

*President*—H. S. White.

*Vice-presidents*—Heinrich Maschke, P. F. Smith.

*Secretary*—F. N. Cole.

*Treasurer*—W. S. Dennett.

*Committee on Publication*—F. N. Cole, Alexander Ziwet, D. E. Smith.

*Members of the Council to serve until December, 1909*—G. A. Bliss, E. W. Brown, M. W. Haskell, A. G. Webster.

The treasurer's report shows a balance of \$5,195.80 on hand December 14, 1906, being a gain of about \$1,360 for the year, and including about \$2,800 life-membership fund. The sales of the society's publications, exclusive of the *Bulletin* sent free to members, amounted during the year to over \$1,500. The library has increased to over 2,500 volumes. The number of papers presented before the society in 1906 was