



PRESIDENTIAL ADDRESS

THE PAST AND FUTURE OF THE SOCIETY FOR INDUSTRIAL MICROBIOLOGY

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It seems fitting on this, the tenth anniversary of the Society for Industrial Microbiology, to discuss with you where we have been and whither we are going.

Not only is this a fitting time for review and prognostications but I feel that I am pretty well qualified to discuss this history with you. Not only am I a charter member of the society, but I have served in an official capacity as treasurer, secretary, and president since its organization.

The society was organized at a meeting in New York City on December 29, 1949. During the summer of 1949, letters were mailed by a publicity committee headed by Walter N. Ezekiel, announcing the time and place of the meeting and explaining the objectives to be achieved by such an organization. I read these letters with little enthusiasm as I was a member of the Mycological Society of America and I felt that there was little need for this new society. My lack of enthusiasm was shared by John S. Karling, head of my department at Purdue, who was also a member of the Mycological Society. We had many conferences concerning this proposed organization of microbiologists and finally just before our departure for the New York meeting we decided that if we couldn't lick them we had better join them.

There were about 300 present at the organization session and as is customary with such biological phenomena, the birth was accompanied by many obvious signs of distress, groans, tears, and almost bloodshed. It seems that there were two groups interested in gaining control of this new venture. There was much shouting and gesticulating and for a while, I was certain that the police would be called to settle the disturbance. Finally, one group prevailed and a temporary organization was effected. Dr. Charles Thom was elected temporary chairman of the meeting and much to my surprise, because I had taken no active part in the debate, I was elected temporary secretary. Dr. Thom was elected president until a constitution could be written and a permanent organization effected. At Dr. Thom's insistence I remained as secretary-treasurer until elections could be held under a constitu-

tion. Only thirty-three persons signed membership cards at the close of this initial meeting. It was decided here also that the new society would put on its first program at the 1950 annual meetings of the American Institute of Biological Sciences (AIBS) in Columbus, Ohio, September 11-13. Dr. Thom appointed a committee of organization consisting of M. M. Baldwin, W. N. Ezekiel, F. G. Walter Smith, E. A. Walker, W. L. White, and C. L. Porter. This committee was to write a constitution and prepare a program for the Columbus meeting. Dr. Thom's influence in this first year of our organization cannot be overemphasized. He was one of the most outstanding microbiologists of his day and a man of international reputation. His prestige meant much to the development of this new infant. Until his death, he was a loyal booster for this society. However, having appointed an organizing committee, Dr. Thom left further details of organization to the committee. He told me as secretary that I would be responsible for calling meetings of the committee and seeing to it that they accomplished their assigned tasks.

This committee met several times during the first year, prepared a program for the Columbus meeting, and wrote a constitution which after several minor changes was adopted at the first business meeting of the new organization. This constitution has been amended and is still undergoing revision but it continues to be the framework of our governing laws.

The society has been fortunate in having a succession of able and devoted men to serve as president, the present administration not included. These presidents include Dr. Charles Thom, who served two terms, Dr. Benjamin Duggar, Dr. Kenneth Raper, Dr. James Horsfall, Dr. H. Boyd Woodruff (two terms), Dr. J. M. McGuire, and Dr. C. W. Hesseltine.

Our official meetings have always been held with AIBS, although we have held a number of additional meetings with The American Assoc. for the Advancement of Science. Our programs have always been adequate, but the earlier meetings were not outstanding. Beginning with the meeting of The Univ. of Florida in Gainesville in 1954, there was a distinct improvement in the programs, and in my opinion the Gainesville meeting and all succeeding meetings have offered programs superior to those presented by any other society belonging to AIBS. The annual banquet was first instituted at Gainesville and has since become a tradition. At the next meeting in East Lansing, 1955, we began to put out SRO signs and these have been in order for some of our sessions at every meeting since.

At the end of our first year the society registered some 75 members and by agreement, all those joining during the first year were considered charter members. Our present membership lists about 550 members.

I have related the lack of enthusiasm which I felt for this new organization in 1949. However, having worked with it in an intimate fashion for ten years, I have become perhaps its most enthusiastic booster.

At the time of organization there appeared to be a real need for this new society.

The purely practical and industrial aspects of a learned society were mostly neglected by older groups including the bacteriological, mycological, botanical, zoological, and chemical societies. It was difficult in 1949 for a purely practical

paper in microbiology to secure a place on the programs existing at that time or to find opportunity for publication in the older journals.

The changed thinking which has occurred since 1949 has been brought about by our society. The Mycological Society of America has become more industrially minded and practical papers concerned with microbiological developments are now accepted by that society's journal, *Mycologia*. Also, the Mycological Society now arranges joint sessions with both the Botanical Society of America and the Society for Industrial Microbiology, at which papers of industrial significance are read. The greatest changes however, have developed in the thinking and attitude of the Society of American Bacteriologists. This organization began the publication of a new journal, *Applied Microbiology*, which is devoted entirely to the broader and more practical aspects of microbiology. *Applied Microbiology* has had continued encouragement from our society and until 1960 was voted the official organ of the society. Many bacteriologists now call themselves "microbiologists." At the national meetings of S.A.B. they now have an industrial section at which papers of interest to industrial microbiologists are read.

As a society, S.I.M. has little to fear from the mycologists. Their membership at present is but little larger than ours without our potential for further growth. While they now tolerate discussions of the more practical aspects of fungi, they do not encourage such discussions and give only lukewarm support to industrial mycology. The Mycological Society is concerned, and properly so, with taxonomy and morphology of the fungi and with the more theoretical aspects of fungus physiology.

The greatest threat to the existence and continued growth of the Society for Industrial Microbiology is the Society of American Bacteriologists. This is a very large group numbering several thousand members. Their dues are high and they have no special financial worries. They can afford to do many things to attract the support of industrial microbiologists which we are not able to do financially.

I have no quarrel with S.A.B. I have been a member of that society for many years but if we are to continue to exist as a distinct organization we must decide in what areas we can compete successfully with S.A.B. and how we can provide services to industries with which no other organization can compete.

It is my purpose to suggest a few ideas which may be helpful in making us, after another decade, a stronger, sturdier, and more useful society than we are at present.

MEMBERSHIP

There are a number of organizations including the Society of American Bacteriologists and the American Chemical Society which have grown so large that they have become unwieldy. The administration of these groups has lost personal contact with the membership. In order to proceed efficiently with such large numbers they must enforce rules and regulations which hamper individual initiative, incentive, and recognition. At their meetings the sessions devoted to volunteer papers are so clogged that each presentation is limited to 10 or 12 min with little opportunity following the delivery for a discussion of the more salient points. In such large societies there is little opportunity for the majority of their member-

ship to achieve recognition in the counsels and decisions of the group. There is little chance to become personally acquainted with the officers or, to become an officer. There is about as much chance for the rank and file to express a gripe or offer a constructive suggestion as there is in the Teamsters' Union. Such a situation does not now prevail in the Society for Industrial Microbiology and I hope that we never grow so large as to be guilty of such autocratic practices.

However, at present, our group is too small to be as effective as it should be in carrying out its objectives. I have a distinct feeling that with every one working on this job we could double our present membership before 1962. A membership of 1200 would not be too unwieldy and would permit us to accomplish many things, even at present dues levels, that are now beyond our grasp.

I believe that a membership beyond 1200–1500 should be discouraged, for then, we, like other groups mentioned, would lose that personal contact which now is one of the principal attractions. When we reach this level I would favor a waiting list, adding new members as present members drop out because of death, retirement, change of occupation etc.

Our membership includes chemists, bacteriologists, mycologists, physiologists, engineers, geologists, zoologists, marine biologists and plant pathologists. The several organizations in which these scientists work include industrial and educational institutions as well as federal and state laboratories. The principal fields of interest include deterioration, antibiotics, and other products produced by microorganisms, metabolism, and control. As to occupation they may be classified as technicians, supervisors of research and production, managers, teachers and investigators concerned with pure research. Since we accept all of these diverse groups into membership we must devise a program that will be of interest to all of them. If we are to be a successful society this program must include not only the few days of the annual meeting but be of appealing interest throughout the entire year. This takes extensive and intensive planning and devotion, hard work, and personal sacrifice on the part of the society's members. This is a responsibility that we dare not shirk if we are to survive, especially in the face of the competition which is becoming more acute.

Geographically, our membership represents all sections of the country, with the Eastern Seaboard and the Midwest having the greatest membership, both regions being highly industrialized. Forty of the 50 states of the United States have one or more members. We also have members on our rolls from Canada, Mexico, Honduras, England, Italy, and Sweden. We are really an international organization.

Every scientific society is actually a service organization which, if it justifies its reasons for existence, must seek constantly to promote the professional interests and opportunities of its members.

Many industries are represented in our membership. In fact, the majority of our members are associated in some fashion with industry. We should give every possible assistance that we are capable of rendering to these industrial concerns.

A few ways suggest themselves and my list of possibilities is certainly not complete. Some industries represented in our group are very large corporations with well-stocked libraries, and with research laboratories which are better

equipped than most university laboratories. Such industrial concerns are more or less self-contained and actually need little outside assistance. On the other hand, we have represented in our society, industries that are too small at present or too new to have adequate research and library facilities. They need more promotional aid, which we could provide. These newer and smaller industries need more of our help than do the larger and older ones. But whether large or small, well-established, or struggling to become established, they should be able to discover unexpected dividends from their association with the Society for Industrial Microbiology.

Discoveries made in industrial laboratories which are patented, ready for market, and no longer secret should be publicized in our news sheet. Such discoveries are stimulating to others and provide new and better ideas for industrial research in addition to informing the public of new and useful products.

It would be even more profitable if results of experiments in academic laboratories could be made more quickly available to industrial laboratories. Much academic research is published in technical journals but much more is hidden in theses which never are published except possibly in abstract. The humblest thesis for a master's degree, which does not contain sufficient positive results to justify publication, often contains ideas of technique and results which, though inconclusive, should be explored further. Even negative results, if known, would save time, effort, and expense, in continuing an investigation involving the same or similar problems.

If the salient and significant results of unpublished theses could be made available to the membership of this society we could render invaluable service. I have an idea of how this could be accomplished which I would be happy to present to our executive committee.

Many industries are equipped and prefer to train their own technical personnel in the peculiar and special methods characteristic of their laboratory and development. Other companies are required to take raw high school or college graduates and hope that their academic training has been sufficient to permit them to do adequate work. Much time is lost. Young women get married before they have become efficient laboratory workers and leave their employment. Many of the young men never do learn the required skills and leave as failures, to go into teaching or the ministry.

The suggestion, originated with Dr. E. L. Dulaney, has been made that S.I.M. take over the sponsorship of summer classes for industrial personnel to provide additional training in the study and manipulation of microorganisms, particularly fungi. These classes would provide instruction somewhat similar to that now provided at Purdue by the Microbiological Institute, now in its thirteenth year. These courses should be more closely tailored to the specific needs of industrial personnel. S.I.M. would conduct a publicity campaign to call attention to the availability of such courses. Industries in our organization could provide speakers, exhibits, and suggestions for the content of such courses. I consider the idea a practical one that would be of great use to many companies concerned with microbiological processes.

This year for the first time S.I.M. has offered industrial memberships with dues set at \$50.00 per year. A number of companies have availed themselves of

this opportunity. It provides additional funds for the society and gives us more economic breathing space. However, we should not look on industrial memberships as charitable gifts any more than personal memberships are so considered. Every membership which we accept, whether personal or industrial, imposes upon us an obligation for rendering service. This year, we have not promoted either personal or industrial membership to the extent of our opportunities.

Our society should never become so large as to lose the personal contact with individual members. We should encourage colleges and universities as well as federal and industrial laboratories to give us information concerning their needs for prospective employees. Also, we should assume a certain responsibility for assisting our members to find suitable employment.

PUBLICITY

A young society such as ours cannot afford to hide its light under a bushel if it wishes to become influential and to attract members. Even this year after its ten years of existence, I have received letters from people desiring more information about S.I.M. and stating that they have just heard in circuitous fashion of the existence of such an organization catering especially to the interests of industry.

Publicity should not be confined to events taking place at an annual meeting. Any event that may be newsworthy within the knowledge of any member and which in any way will advertise the activities of S.I.M. as a society should be transmitted as soon as possible to the publicity committee or to the secretary. The publicity committee is not in a position to ferret out such items, its responsibility is only to act following reception of information.

The secretary is responsible for the issuance three times a year of News Letters. Our present secretary, Dr. Brinton Miller, is especially adept in this particular enterprise. He has enthusiasm, imagination, and ability. Located as he is in the laboratories of Merck Sharp & Dohme Research Laboratories, his office is a strategic listening post for items of interest to the membership. He is in a position to evolve our present News Letter into a valuable industrial journal or book. Lack of funds is all that prevents such an evolution. There are several possibilities that might provide a more adequate journal-news letter.

This financial dilemma which now prevents the publication of a more elaborate News Letter could be solved in part by a significant increase in personal and corporate memberships. But, if this news sheet is to evolve some day into the really good microbiological journal that some of us dream about, other measures must be considered. Two come to mind: (1) advertising—a journal going out to a thousand or more members should make many types of advertising a profitable venture to companies which participate. (2) We should investigate the possibility of combining with certain existing trade journals which would be happy to be a partner in such an undertaking. I have been told that there are several such journals which would appreciate such an opportunity.

Such a journal would help us pursue successfully a number of those projects which I have mentioned but which may at the moment be beyond our grasp.

Microorganisms have great industrial potential which we are just beginning to appreciate. We must be alert and imaginative and foresee trends which will develop into new and now undreamed of areas of exploitation of microorganisms.

Not too long ago, filamentous fungi appeared important only because of their nuisance value or as a sort of intellectual hobby. Journals in that era which carried any information at all about fungi concerned themselves principally with taxonomic disputes and mycological forays. This was the squabble and picnic era of mycology. Then came the discovery of penicillin and what a difference this made in the mycological outlook. If S.I.M. had existed in the decade following Fleming's discovery and if we had had the insight to grasp the potentialities, we wouldn't be wondering today if we were going to be organized out of existence.

Two events occurring at this meeting indicate that we have an awareness of things to come. viz., the symposia on the microbiology of outer space and hallucinogenesis. Industrial laboratories with a few exceptions are followers, not leaders. Apparently, they use little imagination and are not aware that the application of pure research today is the lifeblood of tomorrow. S.I.M. can function by indicating at early stages exciting possibilities.

One area that is not new, but which should receive the attention and support of this society is taxonomy. Taxonomy is the mother and the father of all microbiological research. It is as important to know what a fungus *is* as what it *does*. We need to know natural relationships in order to select our organisms intelligently and efficiently. We should be able to produce strains of species and relate them to each other and to their near relatives. Taxonomy is deadly monotony and few care to engage in it. The taxonomist is poorly paid during his lifetime and achieves no glory. His heirs can only afford for him an unmarked gravestone after he dies.

We need more monographs on fungus groups, such as the work on *Penicillia* and *Aspergilli* published by Thom and Raper and assisted most ably by Dorothy Fennell. Incidentally, all three of these great scientists are, or have been members of S.I.M. Their books are invaluable in industrial laboratories.

The great work of our previous president, C. W. Hesseltine, on the *Mucorales* of Wisconsin has never been published in detail because of the lack of funds.

The Deuteromycetes, otherwise known as *Fungi Imperfecti*, are in an amazing state of chaos and will remain so until monographs on the various taxa are written. I don't know how many appreciate the fact, but until the confusion of this great class is removed by adequate monographs many of these fungi cannot be investigated adequately. Monographs entail much research and frequently take a lifetime to complete and few have the funds or other incentives to sacrifice a lifetime in such unrewarded work. I see no solution to this problem until industries become sufficiently enlightened to their own best interests to subsidize such work with generous grants. I believe it to be one of the opportunities of S.I.M. to urge continuously that industries give financial support to such fundamental projects.

It is for the Society for Industrial Microbiology to decide whether it wishes to become a historical statistic, to continue in mediocrity, or to go to work and achieve greatness.