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The Academy of the State and the State of the Academy¹

WILLIAM C. OELKE²

Our experimentation with the arrangement of the Academy program this year, largely due to the insight and initiative of Dr. Don Lewis of the State University of Iowa, and ably forwarded by Dr. Sherwood Tuttle and others from our host institution, seems to have been most successful if one can judge from the results so far. This rearrangement of the program, placing the address of the president in juxtaposition with the business meeting, allows and indeed makes advisable a change in its character.

It has been my casual observation that the majority of members of the Academy are not conversant with the problems besetting their organization nor with the opportunities open to it. This was true of my own case until the duties of various offices brought me in closer contact with Academy affairs. In general, business meetings have been poorly attended, partly because of their position at the extreme end of the program, and partly because of lack of interest. One rarely becomes interested in something he knows little about.

I have long held the opinion that one of the duties of the president of an organization is to give his membership an over-all view of what is going on. This duty was recognized by President Hertel in his address last year. I wish to continue in this short talk of mine not only to examine the status of the Academy as regards its present, but also to express concern, hope, and plans for the future. To borrow an expression from the clergy, this is a sort of pastoral letter.

Our constitution states the object of this Academy in the broadest terms, that is, "the encouragement of scientific work in the State of Iowa." Since 1887 this mandate has been carried out under the able leadership of 69 different presidents. I will not succumb to the temptation of mentioning even the most outstanding of these. Their names, published in each *Proceedings*, constitute an inspiring roster of pioneers in scientific education in the State of Iowa.

But times change and with them comes the necessity of new emphases and reoriented programs. I am quite certain that many of the suggestions I make here will not meet with majority approval. Some are undoubtedly unwise under present conditions, but most, I

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hope, are worthy of discussion as a stimulant to further thinking and ultimate well-considered action.

Iowa is fast becoming an industrial state in spite of its large farm areas. More properly, I should say Iowa has already become an industrial state. "In 1958 Iowa produced 5 billion dollars of industrial output as against 2.6 billion dollars of agricultural output." This is quoted from "Water Resources Requirements for the State of Iowa" by Park Rinard, administrative assistant to Governor Loveless. Again quoting, this time from the Iowa Business Digest for 1957: "For the period 1950-1956 the per capita increase or decrease in civilian income for Iowa was -30.8 per cent for income from agriculture, and +40.7 per cent for income from manufactures." Finally, this time from the report of the Governor's Commission on Economic and Social Trends of 1958 directed by President Howard R. Bowen of Grinnell, the section by Clark C. Bloom of the State University of Iowa: "Since 1939 manufacturing employment has been growing at a more rapid rate in Iowa than in the nation. . . . Between 1947 and 1954 manufacturing employment grew by 10,500 workers or 7 per cent of the 1954 figure," while "employment in agriculture is declining at the rate of 4,000 to 5,000 persons per year."

Believing that obtaining data on industrial research in Iowa and the felt need for industrial research facilities were part of our concern, I conducted a mail survey in January of this year with the help of Dr. Lindahl, our secretary. The questionnaire and covering letter were sent to a selected list of 250 businesses listed in the current Iowa Directory of Manufacturers. All concerns with 100 employees or more were included, while those with between 20 and 100 employees were included when it seemed likely the nature of their business might involve some research need. Of the 250 forms sent, 124 or fifty per cent were returned. Some of these were accompanied by interesting letters. The results of this survey are as follows:

Total number of questionnaires mailed.....	250
Total returned (some incompletely filled).....	124
Returned by independent Iowa companies.....	69
Returned by branches or affiliates.....	46
Number of companies spending the following amounts for research in Iowa during 1959:	
\$ 500—\$ 1,000	2
\$1,000—\$ 5,000	16
\$5,000—\$25,000	16
Over \$25,000	32
Number of companies employing outside consulting firms or research agencies during the last year.....	59
Number of companies utilizing research facilities of parent company or other affiliate.....	19

Questions	Total Answers	Yes	No	Percent Yes
1. Is research being carried on in Iowa by your company?	113	73	40	65
2. Do you consider your research facilities adequate?	75	39	36	52
3. Have you used consulting or re- search agencies outside your plant during the last year?	105	50	55	47
During the last five years?	92	57	35	62
4. Have you felt the need for outside consultation or research within the last year?	101	58	43	57
5. Do you feel an industrial re- search center in Iowa is needed?	70	39	31	56
6. Do you believe you would use such facilities if available?	75	37	38	49
7. Would your company be interested in aiding the establishment of an industrial research center?	72	22	50	30

While it is difficult to summarize these data in a few words, it does appear that there is an impressive amount of industrial research being carried on in Iowa. The amount invested yearly is almost certainly above \$850,000 and probably runs to considerably over a million dollars. Answers to Question 4 show that 71 per cent felt the need for outside consultation or research during the last five years, and 57 per cent during the last year. To me this would indicate that the need is growing rapidly. It certainly is elsewhere in this region. In 1959, research income of the Midwest Research Institute at Kansas City reached a total of \$2,818,000 or an increase in research volume of 15 per cent over the previous year.

Within the foreseeable future there should be sufficient support to warrant the establishment of an industrial research institute in and for Iowa. Even now 22 companies, eight in the top bracket of research expenditures, have indicated an interest in aiding in the establishment of such a research center.

People with experience in this field, for example in connection with the founding of the Midwest Research Institute, point out that there is a threshold of actual and potential support for such a concern which must be exceeded before an operation of this kind can be successful. By this I mean there must be a minimum of personnel and facilities, and of financial support, before the research capabilities of an institute are broad enough in scope to attract the business to keep it going.

It seems doubtful that Iowa has reached this point as yet, but further investigation is certainly worth while, and the Iowa Academy is the logical group to do this. The question of whether the Iowa

Academy should be the eventual sponsoring group for such a center is clearly debatable, but I would say that the possibility should not be considered beyond our concern, nor outside this mandate of our charter.

For the immediate future I have a more definite recommendation. I propose the establishment of an Iowa Research Panel. The members of the Academy constitute the largest group of capable research people in the state. While many are already fully engaged in research sponsored by government or by foundations, there are others who undoubtedly have marginal time available for research or consultation. A committee of the Academy should be established to gather the names of these into a roster of Iowa scientists available as individuals for industrial research and/or consultation. The area of interest and greatest competence of each should be stated, along with the research facilities available to them and the amount of time each could devote to consulting or to sponsored research. The Academy should distribute this list to all Iowa manufacturers as a service of our organization. In this way the Academy could do something immediately toward meeting the quite evident need for additional industrial research in Iowa. At the same time it would render a service to its members, who would benefit from the added stimulus of industrial contacts and would welcome the added income from consulting or research contracts.

Turning now to internal affairs, the Academy would benefit from a wider representation among its members in offices and standing committees. Not but that the present committees are functioning well in most cases, although in some the pressure of other duties on the individuals involved has somewhat inhibited their activities. All are composed of interested and dedicated members, but if one looks back through the *Proceedings*, one is struck by the regular reoccurrence of a relatively small number of names—those of the faithful old wheelhorses who have been pulling more than their share of the load for years.

The reason for this is clear. In a rather loosely knit organization such as ours the acquaintance of any one individual is limited largely to others within his own field and often to those in a small circle within this group. By our constitution, committee appointments are made by the president who customarily follows the recommendations of his committee chairmen. Each is handicapped by his specialized acquaintance as mentioned above. If the Academy is to continue to prosper, a large number of the younger men should be brought into the committee structure. This has been done quite well on the section level, and we have had from year to year an exceptional group of able and enthusiastic section chairmen, mostly

from this younger group. There is no question but that the Academy has benefited from this. I would like to see the same thing carried into the higher levels of our organization.

The obvious answer is to get to know each other better, but this becomes more difficult each year as the Academy membership grows. Another solution must be found. This year I would like to ask that the nominating committee of each section add to its primary duty of nominating section officers the following one: that of preparing a short list of names of those persons regularly supporting the work of the section and the Academy, who deserve recognition, and who would be desirable officers and working members of our committees. Each name should be accompanied by a brief dossier indicating that person's area of interest and his experience, and should contain information indicating his special competence. It is unlikely that on this short notice these lists can be completed during the period of this meeting. However, each nominating committee chairman should consider this an immediate item of business following the meeting. The lists and their accompanying informative material should be forwarded to our new president and used at his discretion. Such a collection of names would have been invaluable to me last year. If the idea proves valuable this year, the supplementing of these lists should become a regular yearly item of section business. It means some extra work on the part of the nominating committees, but I can think of no action which would infuse greater life into the Academy during the coming years than this. We must supplement the wisdom and experience of the older members with the imagination, drive and relatively free time of our younger people.

I mentioned earlier the excellent work done by our section chairmen in developing the program of their respective sections. This is made more difficult by the yearly turnover of section officers, and by the lack of contact between outgoing chairmen and incoming ones. Each has had to gain his experience afresh. This year, following a suggestion made, I believe, by Dr. Guillermo Mendoza of Grinnell, I have asked Dr. E. M. Vaughan of St. Ambrose, working with our secretary, Dr. Lindahl, to prepare copy for a "Guide to Section Chairmen" which will be available to new chairmen in pamphlet form. Dr. Vaughan is just full of fresh ideas for development of section programs and has done a superb job in preparing this leaflet.

While on the subject of publications, I wish to express officially the deep appreciation of the Academy and my own personal feeling as well to Dr. T. E. Rogers, our editor, and to all who have worked with him on our journal. The *Proceedings* of the Iowa Academy is outstanding among academy publications. We can be justly proud of our *Proceedings*. At the same time we should be grateful to the

state government for carrying the cost of printing and binding. Many academies, without such a subsidy, are finding it increasingly difficult to support their publications. On the other hand, nine academies publish a News Letter one or more times during the year. This seems to me an excellent method of keeping the membership informed of academy activities and might well be emulated by our own organization. We need to be more closely knit if we are to continue to prosper. A news letter would be one method of accomplishing this.

At present, the Iowa Academy is in a relatively healthy condition. Its membership is about as large as that of any of the academies. Only California and Illinois academies are larger than our own, with those of Michigan, Ohio, and Maryland following us in that order. Our section programs are, for the most part, well filled except perhaps for an occasional soft spot at some of the recent meetings. I do, however, perceive "a cloud on the horizon no bigger than a man's hand", but which will grow. At present it presents merely a challenge to the state academies, but in time it could grow into a menace. I refer to the undergraduate symposium.

Historically, the state academies were set up in the horse-and-buggy days when national meetings were rare, hard to get to, and almost prohibitively expensive to attend. Relatively few scientists had an opportunity to present papers at these national meetings. In these days, with dozens of meetings of national scope occurring throughout the year, and with sponsored research budgets allowing expenses for travel, it becomes possible for any serious scientist to present a paper at a national meeting at least occasionally. This is certainly true of those in the universities and of many in the colleges. For these, the presentation of papers at state academies becomes more a matter of loyalty than of necessity, a duty rather than a pleasure. Even in the case of graduate students in some disciplines, the presentation of papers at state academies sometimes takes on more the character of a preliminary workout than an all-out effort.

At the same time we find this new type of local or regional meeting springing up. The undergraduate symposium results from the rapid growth of undergraduate research in the colleges. In a recent survey (1956-57 academic year) by Dr. Harry Lewis of the Institute of Paper Chemistry among the 67 MACTLAC (Midwestern Association of Chemistry Teachers in Liberal Arts Colleges) colleges in seven Midwestern states, 47 of the 61 answering the questionnaire or about three-fourths reported chemical research being carried on by undergraduates. As nearly as I can determine, a similar thing is occurring in the other sciences. These young people need places to present their papers and deserve the encouragement of mature

scientists. While the *raison d'etre* of academy paper sessions has been decreasing on the faculty and graduate level, it is rapidly increasing in this other area. Although the Iowa Academy has accepted and even welcomed papers by undergraduates for many years, I am not sure the climate for their encouragement is any too warm yet.

To my mind the organization of regional symposia within the state or near its borders is inimical to the longtime welfare of the Iowa Academy. It is not just a question of disliking competition. It is a case of others moving to satisfy a need that the Academy should be meeting. It is not only our duty but vital to our long-time existence to move further into this area of undergraduate scientific interest which lies midway between the traditional roles of the Senior and Junior academies. Some state academies have collegiate groups separate from the senior and junior academies. I do not believe this is the right answer. The Iowa Academy, through its section chairmen, should expand its present efforts to encourage the presentation of sound, high-quality papers by undergraduate authors along with its present fare of graduate and faculty research. If our present section organization is inadequate, if the time available or the size of meeting rooms is not sufficiently great, we may need reorganization. New sections could be added or the present sections split as has sometimes been done in the past. I do not believe these papers should be segregated, nor an undergraduate Academy organized. Our limited experience over the past years has indicated that papers by undergraduate college authors, working under faculty direction, compare favorably with those by graduate students. They should be recognized on an equal level and on the same program.

We also need actively to seek out papers from scientists in Iowa industries. Not as many of these men as should be are members of our organization, nor for the most part do they utilize our sessions for the presentation of papers. Where the work they are doing is indigenous in its nature, or related to local or regional products, the meetings of the Academy are the logical outlets for their discussion. Here lies another scientific area into which the Iowa Academy should move.

Experience in planning section programs has shown that a varied diet, both in character and in interest, brings out and holds the best attendance. I would also like to mention a feature of our program this year which I feel is highly commendable. Spotted through the section programs and to be published in the *Proceedings* are a strictly limited number of invited papers by high school students. We should not run competition in general with the Junior Academy, but

we are doing not only them but ourselves honor by recognizing their outstanding people in this way.

In conclusion, I wish to thank all of you who have helped to make this a good year for the Academy. It *has* been a good year. Largely through the efforts of Dr. Don Lewis, chairman of our finance committee, and others at the State University of Iowa, we have very recently received a grant from the National Science Foundation to finance a program of Visiting Scientists to our Iowa high schools. This program will be under the able direction of Dr. T. R. Porter of Iowa City.

We have gained in prestige as a result of the outstanding program of seminars and symposia sponsored jointly by the State University of Iowa and the Academy for this meeting.

The Iowa Talent Search has been most successful under the direction of Dr. Joe Woods of Drake, with the cooperation of Dr. Peckham of Clinton Foods, although we all mourn the passing of Dr. Brown of Ames who over so many years was the sparkplug of this activity.

Other activities of the Academy have been ably carried on, as will be evidenced by the short resumes of committee reports during the meeting which follows.

In this address I have tried to point out some of the new areas into which the Academy should move. The future is open to us. The Academy will continue to grow in importance, influence, and usefulness if we avail ourselves of our opportunities.