

28.68

Speech Given at the Luncheon of the A.I.E.E. Board
of Directors by Dr. D. L. McFarlan, Friday, Feb. 3

President Linder - Members of the Board of AIEE:

Having just heard your story, Mr. Linder, it reminds me that, having to make one of these long journeys around the various sections, I went to the AIEE Headquarters and asked the Office Manager of IRE, Miss Sirgane, if anyone had written in any letters in a humorous vein which might be used and she gave me one. It impressed me and I haven't forgotten it. It was from a delinquent member who was applying for re-admission to IRE. The letter went somewhat like this:

"Dear Miss Sirgane:- I resigned my membership about four years ago because my wife discouraged my continuous membership. I have divorced her. And now my wonderful new wife wants me to rejoin."

(Laughter)

Let me say that I am very appreciative and honored by the invitation to be with you here today. The problem of talking about explosive problems in technology is obviously one that could take us far into the night and I have the floor for only fifteen minutes. However, electronics, in the very broadest possible sense of the term, is exploding. It is revamping our entire educational system, it is revamping our entire professional society system. Since I can use IRE as an illustrative example, I will talk IRE. We in IRE were faced with some real problems to explode along with the technology and to a host of splintered groups (???) or should we try and build

a little bit of coherence into the picture? The answer was, obviously, coherence, if we could. This led to the development of a professional group system which started off back around 1950, approximately, and grew very rapidly to a count of 28 professional groups. Breaking it down into a number of specialty professional groups: circuit theory, information theory, and that sort of thing, communications systems, military electronics and more generalized groups. Education, engineering writing and speech, if you will, and other things cutting across large numbers of discipline. Then, we were very shortly faced with the problem, shall we continue indefinite proliferation of the groups, and after some deliberation the answer was "No." In other words, this sort of thing could go on indefinitely, so finally we decided that unless we had really good cause - and by that I mean Really Good Cause - there were good reasons to create additional groups we would not and, as new applications came in (and within the last three years there have been a half dozen applications for professional groups) we tended to find homes for them among the existing professional groups, changing to some extent, if you will, the scope of each of the existing professional groups, and this has worked pretty well. It served particularly the applicants of new groups because the technical vehicle already existed, because it is the function of any technical society, IRE or AIEE, to disseminate technical information - basically this is why we are here - and in so doing we withstood these new technologies with which electronics was tied in; airborne navigation in one

area, military and remote control in another, military telemetry and space telemetry and remote control in another and supply telemetry and space technical groups. Well, the question arose as to what extent we should permit overlap. In all of these cases it is very desirable that there should be some area of overlap. One cannot take the electrical art and technology or science and divide it into nice convenient cubbyholes. (It might be done in the universities but nowhere else, as far as I know) and so this we encourage. And then came the question of what happens when you have two professional groups with very large areas of overlap and here we ran into the psychology of human nature. You have two existing administrative committees, two existing sets of officers - how do you get them together? Let us be quite open and honest. We haven't quite yet succeeded in putting two together but we are trying. But, in the case of some of our committees where the problems have arisen, we have a nice technique which works pretty well. All members of these committees are on limited appointments - one-year, two-year, three-year. You make the combined committees the composite of the committees which are combined and then you just don't re-appoint at the maximum rate. In time, the committee is brought back to a reasonably operable size. This works pretty well. Well, now, as a result, we have found that by having over all of these groups the Professional Groups Committee which consists of the National Chairman in each of these groups and appointed professional groups chairman who is usually the Junior or Senior Past President, a professional groups coordinator whose job it is to

represent on the Executive Committee the interests of the professional groups, plus the President, plus the Executive Secretary, it works pretty well. It is a little bit large; in other words, a little large, with 28 professional groups and 5 or 6 more appointees we get something around 34. We prefer it to be around half that size but of course all groups must be represented. Well, then, when chatting with President Linder, the question came up of how in administering this colossus that is IRE do we manage to reduce its operations to an efficient technique which can be kept track of and operated efficiently over the years? Well, we do this by having a Board of Directors meet only four times a year. There is an Executive Committee, all of whose members are members of the Board, who have a very large amount of delegated power. The Board concerns itself only with matters of major long-range policy. The Executive Committee runs IRE. We report to and are in the employ of the Executive Committee. This means that each member of this is a specialist in his own particular area of activity as it applies to IRE. The Professional Group coordinator knows the professional group structure thoroughly. The Membership Relations coordinator is well skilled in all problems of the Admissions Committee and if he does not agree, as occasionally happens, with some of the recommendations of the Admissions Committee, he has the privilege of presenting his disagreement to the Executive Committee who can reverse the actions of the Admissions Committee.

The Editor, a man representing all of the IRE Sections and Regions, is hired and so it goes, so that by operating over the years with a very small group usually each year one man is added and one man is dropped. Here then, we have continually a coherent power group of men who effectively run the organization. This works very well. It is this group which reviews in great detail the budget which is prepared and recommended by the Executive Secretary. It is this group which administers the financial affairs of the Professional Group. It is this group which has the final decision without having to refer to the Board of Directors on all problems as they affect the Region or the (except as) Section and insofar as new policy is concerned, it works pretty well.

Now also in talking with President Linder he asked me to touch a little bit on some of our educational activities. Our budget for students in 1960 was \$150,000. We had a student membership, as I call it, around 18,000 or 19,000. This was used to put out the Students' Quarterly to also subsidize our joint AIEE-IRE Student Branch Sections and also those sections which are IRE alone. At the same time, we have a very, what to me is, well-thought-out cooperative program with AIEE and ASEE, the American Society for Engineering Education. This has been discussed to some length over the last year or two and right now is being implemented. Step One in this program was yesterday, here, in your (AIEE) program of graduate engineering curricula, presided over by Dean MacEachron. This will be followed in March at the National IRE Convention in New York when there will be a session on exactly

the same subject where we will discuss the need for basic standards in graduate electrical engineering education and the role which industry and professional education should play in it. This is extremely important. Why? Let me try to answer this with the speech that Chancellor Terman of Stanford University made in Chicago last October at the National Electronics Convention. You may have heard him. In essence, his speech was this: "Why is the electronic axis of the United States a dipole, one pole being New York-Boston; the other being Los Angeles-San Francisco?"

The answer which he gave, in my opinion, (and in my opinion he was exactly right) is that we have major universities here in the East; particularly in the electrical engineering area - Harvard, MIT, Columbia - that are turning out large numbers of Ph.Ds. (The opposite on the West Coast is ??) The same applies between Berkeley and Palo Alto. Now, why Ph.Ds? These are the boys, electrical engineering Ph.Ds. This wasn't the situation when you and I were going through school but now this is where you will find the students in the top 1, 2 or 3% of potential mental development coming through the universities today. Right now, very properly, the way is made for this top 1, 2 or 3% who are Bachelors to go on to get their Masters and to go on with their Doctors. Here is where we will find the really good. As a result, this is where the electrical engineering leaders of the younger generation are to be found. Hence, you have this whole complex of the Peninsula of San Francisco, with a development coming very rapidly over in the Berkeley open area and then moving around in the Los Angeles complex, and I suppose you have all heard about the Route 128, and so it goes.

For this reason, it is extremely important, from the industrial point of view, that this whole question of electrical engineering graduates in education be standardized. At the moment, it is literally chaotic and I am going to say this in March. There is no reason to believe that a Doctor in electrical engineering from University A, who has had equivalent training in the theory of electrical engineering, should be better than those coming out of Universities B, C or D. Somewhere along the line standards, and very high standards, must be provided so that we will know what we are getting and talking about. This is something, I am sure, in which IRE and AIEE and ASEE, all three of us, can play jointly a very effective role and a badly needed role. Dean MacEachron, who presided yesterday over the Session, will present a summary of that Session at the IRE show in New York. The March meeting and the January meeting here will be reviewed in summary and the ASEE meeting held in Lexington, Kentucky.

Well, this is the type of joint cooperation between AIEE and IRE, I believe, where the AIEE can carry the (banner?) for the benefit of electrical engineering and the more of this sort of thing that we can do the better, I believe, not only for electrical engineering but for our whole Western civilization.

Thanks very much.

(Applause)

Question and Answer Period

Mr. Blackmon:

I would like to ask what percentage of the membership belongs to one or more of the technical groups.

Dr. McFarlan:

I would like to give you the numbers in the professional groups as compared with the total membership, which figures were as of Jan. 15. There are duplicates in this. There are an average between 1 1/2 and 2 professional groups per member but not all members belong to professional groups.

Mr. Blackmon:

How many do not belong?

Dr. McFarlan:

I would say about 30,000 or about 1/3. This is a very rough figure.

Question from the Floor:

What is the size of the Professional Group?

Dr. McFarlan:

These vary in size from the electronic computers, which are 11,000 or 12,000, to some small segments of electronics which ran 4,000 to 5,000.

Ex- President Hickernell:

Have you determined the maximum size of these professional groups that you were shooting for?

Dr. McFarlan:

No, it is our policy to try to reduce the number of technical groups if we can but we are not doing this on a compulsory basis. We are doing it by a combining method. But, we are aware that there are other fields coming up which we must be prepared to take care of.

(It was noted that the maximum number that might be had or the most efficient number would be dependent upon the efficiency of the administrator which they had.)

Dr. McFarlan:

I think we can handle 28 effectively but we are re-organizing our Headquarters staff somewhat to take care of this, in that one man will be responsible for the Professional Group, another for the whole Technical Committee picture, another one for editorials, and so it goes.

Question from the Floor:

Do each of these have their counterparts at the Section level?

Dr. McFarlan:

Yes, they do. This is correct. This is an interesting organizational problem because of chapters of the National Professional Group but administratively they are part of the Section. The monies are handled by the Section treasurer. The Boston Section, for example, have 18 professional (chapters), the Los Angeles - the last count I had was 24 - and they range down from there to Sections who have none. Usually they run from 2 to 8.

Question from the Floor:

Do you get a little bit worried about your group publications - the size of the publications, the number of publications, the number of pages,

how it varies, the minimum publications and questions like that; advertising and all of the things that are contained in them?

Dr. McFarlan:

The PROCEEDINGS right now is being printed at about 100,000 copies. It contains about 50% advertising and the rest of it is editorial material, the actual published articles in it, plus various news items, etc. Abstract review of the entire literature, as near as we can get it, plus the conventional summaries of technical articles both in the PROCEEDINGS and TRANSACTIONS. Now each of the professional groups covers its own transactions. These will vary from the transactions on antenna obligations (?) about 6 times a year which cost us something in the order of \$6,000 a year to put out to (?) ELECTRONICS which comes out at the rate of about 2 times per year. It varies. Most of them are published about 4 times a year which means that the total editorial pages would be around 10,000. This is not advertising. We do not permit advertising in the TRANSACTIONS any more, with the single exception that on the back page we will permit it and on the back page we will permit institutional listing only - no advertising per se. Advertising is only in the PROCEEDINGS and IRE underwrites the cost of the publishing of these TRANSACTIONS 1/3; from membership fees and professional groups comes the other 2/3 and the ^{financial} strength of these professional groups varies. Some of them are quite well fixed financially; others are on the borderline.

Question from the Floor:

In these transactions of the professional groups was there any other material other than the publications of the group; any articles of general interest, etc.?

Answer:

In the Transactions, for example, of electronic computers there would be papers on the whole arts of science and technology of computers. In addition, news items of the field in general there might be biographical information and abstracts of the literature or condensed articles on the literature. In the field of the PROCEEDINGS there has been (something about a program developed which is extremely interesting and important) that four times a year we will bring out special issues which represent at the time of their issue the best composite state of the science and art of that particular field at the time. (These will be very dectronic) one on the solid-state, one on infra-red, one on electronic computers, one on components, and so it goes. About four times a year these come out. Next year we are going to bring out one on engineering mathematics and these will contain real articles, as well as the latest research information in the field. As a matter of fact, the best composite production that I know of anywhere in the whole field of radio astronomy is in that special issue of the PROCEEDINGS on radio astronomy where Professor X of the University of Michigan did a beautiful summary.

Question from the Floor:

How much of this information generates from the local section and finally gets into publication?

Answer:

There is much more submitted than can be printed and this is the problem of selection. The fact that it was presented in a local section has no bearing on whether it will be published or not in the PROCEEDINGS.

Question from the Floor:

Will the National Group furnish the speakers for the Section meeting?

Answer:

No. The Sections are on their own to go get them.

Question from the Floor:

It is understood that each of the professional group of journals has voluntary editors. In the reorganization is it planned to provide professional editors for them?

Answer:

They use voluntary editors too but they are all professionally reviewed by the IRE editors. In other words, the TRANSACTIONS are put out by IRE Headquarters and are reviewed by the entire IRE staff. They are all published by the same publication staff.

Question from the Floor:

Does the editor or the committee decide what papers will be published in the TRANSACTIONS?

Answer:

This will vary, as far as the TRANSACTIONS are concerned, with each group. Some repose their confidence in the editor, some have a small editorial group. In the case of the National PROCEEDINGS, this is determined by the editor and the managing editor. He is a paid employee of the IRE. The editor is usually a voluntary man and between them they decide what articles will be accepted and what articles will not be accepted. That decision is based upon a review by a group of reviewers of which there are more than a couple of hundred on the available list. These articles are submitted to the specialist reviewer for evaluation and the content of the article or the competence of the article, if what is in it is correct or not, and these are very careful reviews. The fact that a paper is

accepted, for example, for presentation as an advance in art has no bearing whatsoever on whether the paper will be accepted for publication in the PROCEEDINGS and although there are convention records, both from WESTCON and from the New York meeting, there is no guarantee of accuracy there. The papers are simply articles from the authors themselves as they put them in. It has not been editorially reviewed but there is a formal editorial policy at the Board's discretion and at the technical level to keep the technical level of the PROCEEDINGS as high as possible. There is no intent whatsoever there except to maintain the technical level as high as possible.

Question:

Do most of your dues go to finance these publications or is there some stabilization of advertising? The import of the question must determine what they do to stabilize the income from their advertising budget.

Answer:

Well, it varies. It comes from advertising, it comes from dues.

Question:

How important is advertising in your budget?

Answer:

About a third.

Question from the Floor:

Can you give me some idea of what percent of your income is derived from your show?

Answer:

Well, very roughly, I think about 20%. Remember, we have many other shows. There is one in Boston in Northeast Research and Engineering who

are one of the two co-sponsors of WESTCON. Perhaps 20% income from these, but, even from that, it is very big.

Question from the Floor:

Does the 20% include WESTCON?

Answer:

No, no. I was just talking about the New York area.

(Note: In the last part of this it was almost impossible to tell whether they were talking about 20% or \$20,000. If it was 20%, then the 20% of what was not obvious.)

Transcribed
CFS:jr
2/9/61