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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ELECTRONICS RESEARCH CENTER

575 TECHNOLOGY SQUARE, CAMBRIDGE, MASSACHUSETTS 02139

TELEPHONE: 491-1500, EXT. 312

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The NASA Electronics Research Center and Its
Relationship with Industry

Address By

Dr. Winston E. Kock, Director
Electronics Research Center
National Aeronautics and Space Administration

To

The American Marketing Association

Thursday, January 7, 1965

I am very pleased to be here today and to tell you a little about how the plans and activities of the Electronics Research Center will affect the marketing groups of many of the New England electronics industries.

I shall first review some of the ways in which your dealings with us will differ from your ways of dealing with industry, the Defense Department and even other NASA Centers. I hope to give you an insight as to the most effective way for you to proceed to insure that we

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can become properly aware of the superiority of the research capabilities of your individual companies.

In the Second part of my talk I shall tell you something of our plans for the future and why we feel that these plans will result in the most effective use of university and industry talents.

Mr. James E. Webb, the Administrator of NASA, stated in his Report to Congress that our Electronics Research Center's function is "to ensure that an increased level of research is carried on in those areas of electronics essential to the mastery of space and in those universities, institutes, and industries which have the capability for the most advanced work and which are prepared to accept contracts and grants in support of such work."

During the fiscal year ending June 30, 1965, our Electronics Research Center plans to place research contracts totalling approximately \$2 million, and we expect 5 years hence--at full operation--that our grant and contract program will be of the order of \$42 million per year.

One of the perennial problems which face a marketing representative of a company is that of determining the

needs of his customers, and then how to market, to the optimum degree, the capability of the company in all dealings with the customer. In this regard, it might be of interest to you if I review some of the highlights of our research program from the standpoint of how we plan to select companies for the award of our research contracts. I propose to escort you, as it were, inside our walls and have you view with me the internal operations which take place.

The fundamental starting point is the registering of the capabilities and interests of the company with the Industry Assistance Advisor's Office of our Center. This establishes in our Procurement Office, a company folder in which are coded and indexed the capabilities and interests of the contractor. This bank of data covering those companies which have registered with our Center, becomes a source of constant reference for consideration whenever research procurement opportunities arise.

How can the marketing representative best represent his company's interests at this point? Marketing representatives are generally aware of the fact that

our Electronics Research Center will be seeking the strongest competence in each scientific field. In the area of research and development contracts, it is NASA policy to award such contracts to those organizations determined by presentative personnel to have a high degree of competence in the specific branch of science or technology required for the successful conduct of the work. Accordingly, the marketing representative should exercise care and skill in the selection of the brochures and other company literature designed to inform our Center as to the company capabilities and interests. An indiscriminate volume of literature and material claiming excellence across the entire spectrum of science and technology will not put the best light on the company as far as our scientists and engineers are concerned. Rather, in most cases, these broad, glowing brochures could give rise to some doubt on the part of the readers as to the accuracy of the claims. But more seriously, they may very well diffuse and blot out the one, or two, or three fields of true excellence which the company can rightfully claim. In short, the marketing representative should carefully cull

the material to be presented.

This does not mean that our Center is urging a new wave of "brochuremanship"--quite to the contrary. We believe rather that the marketing representative should confer with his company's technical or research director and they together should make a judgment as to what areas of company competence are above average and should be highlighted. This highlighting should preferably be in concise format with technical backup attached demonstrating why the company feels that it is outstanding in a particular field.

As you may know, our Center has been and will make continuing use of the COMMERCE BUSINESS DAILY in which we shall synopsise all requirements estimated to exceed \$10,000. The language of the synopsis invites letters of interest from readers who feel that they have demonstrated competence for a particular procurement. Here again, the marketing representative can perform a service to his company if he controls the type and quality of the letter of interest which is forwarded to our Center. The ideal letter of interest would, I suggest, be a document which would address itself

precisely to the immediate requirement being synopsisized, and would be relevant in all details to the qualifications and interests called for thereunder. The letter of interest would profile the demonstrated capability of the company in identical or substantially identical fields. Of course our synopses always state that firms that are currently registered with us and who are considered qualified in this area, need not resubmit data for evaluation in the form of a letter of interest.

Summarizing these last points, then, if the company's original registration data is insufficient, or too general, or claims to be "all things to all men", or if the letter of interest is too stereotyped or general, or otherwise deficient, the company may have done itself a disservice which an able marketing representative could have prevented. The able representative should be given the authority to arrange for quality presentations to our Center when registering the company's capabilities or at the time of submitting the letter of interest.

Now a few remarks on the Government's procurement philosophy. Even in research contracting, the general

rule is to encourage competition so as to select the most capable source consistent with fair and reasonable pricing. As you well know, factors of administrative cost and time, coupled with the fact that the Government must bear the cost through overhead recovery of proposal preparation, dictate clearly that an elimination process must usually be undertaken in order to arrive at maximum competition under the particular circumstances. Thus, using a concrete example, if 50 letters of interest were received and another 50 sources registered with our Center are also thought of initially, our Government team, knowing the estimated cost of procurement, is faced with the basic question as to whether this "raw" source list of 100 firms is reasonable, or whether, in fact, it should be reduced by applying certain qualifying standards. At this state, the only data available to the Government team are those submitted by the contractor, and if the contractor has not put his best foot forward in an accurate and qualitative fashion, his firm could be eliminated at this initial stage--and elimination at this state is elimination from the entire procurement.

Although many of you may be acquainted with the

internal process which takes place during a procurement, I should like to review it briefly. Approximately 10 days after the synopsis of a procurement has been published, members of the technical and procurement staff meet to evaluate the sources which should be considered. The letter of interest and the company brochures are examined by this group. Our technical people seek to establish that the demonstrated capability is significant and substantially identical to the work statement called for. They are interested in the identities and the reputation of the company's research staff, and also the extent of any unique facilities and test equipment which the company may have. The procurement representatives will be interested in the history of performance of the contractor with other Government agencies including such factors as history of cost and time overruns and underruns.

The normal result of such an initial session as described above will be a decision that of the 100 firms initially considered, perhaps 40 should be solicited. Inasmuch as the administrative process at work in such an operation is based upon questions of the

fact arrived at upon a reasonable and equitable basis, the marketing representative should ensure that all the facts were made available for selection of his company for award of an Electronics Research Center contract.

Having discussed how you can help us to learn of the superiority of your company's research capability in a given field, I should now like to turn to an area where you can be helpful to us and to your company by applying yourselves to a somewhat different form of marketing than you normally do. Marketing can perhaps be looked upon as a special case of convincing someone that something you want to happen should happen. In marketing, the something that you want to happen is that the customer purchase your product.

Something else that I think all of us want to happen is that the Electronics Research Center function in the most efficient way possible in recognizing a superiority which exists in your company's research capability. So that you can convince your friends, your associates and your business and community leaders that this end result is desirable, I should like to give you briefly our reasons for believing that our present plans will achieve

this end. We hope you will agree with these beliefs and support the aims and plans we have.

I consider our choice of location to be one of the most important factors in our being able to accomplish the mission envisioned for the Center. There are many who still question NASA's decision to locate the Electronics Center here. As one transplanted here from Ann Arbor, Michigan, I can say that this doubt was voiced in Michigan, and we know that many other areas were in competition with Massachusetts for the facility. But, as an editorial in the Times Star, a Cincinnati newspaper recently stated, and I quote, "The hard fact is that Boston--more precisely, Cambridge--is a natural choice for situating an electronics research center. Since World War II, Boston has been the center of another 'Flowering of New England.' Light industry and research facilities, most of them privately owned, have proliferated in industrial parks beyond the city limits and a good many of them, if not most, fall into the category of electronics. There are two reasons for this phenomenon. They are the Massachusetts Institute of Technology, and Harvard. The two campuses have effected

a revolution in an area's economy, for their research facilities and the brains which populate them are responsible for the expansion of which the NASA site selection is the latest expression."

I should like to stress the "two reasons" indicated in this quotation, they were: MIT and Harvard. I personally believe that it is exactly for these two reasons that not all the sites in the Boston-Cambridge area would be equally conducive to our success. I believe that the choice made by Mr. Webb of the Kendall Square site was the one which provides us with the greatest opportunity for making the Center strong and productive. All of you know that there has been much talk about the Kendall Square site, and I should like to review for you certain aspects of it which relate to our interest in this particular site.

There are some who suggest that NASA may be paying an unreasonably high price for the Kendall Square site. They associate the Government's urban renewal expense with the cost of the site. However, this expense would occur whether NASA or a commercial group developed the land, so the true cost to NASA is that of the land. Similarly, some believe that if NASA were to have taken

land from any one of several military installations in the area which have been or are about to be abandoned, the cost to the Government would have been nothing. However, all of these properties have a resale value and the appraised value of some are significantly larger than the value of the land at Kendall Square. Sale of such properties to a commercial developer would thus provide the Government with a return greater than what NASA will be paying for the Kendall Square land. In other words, no important savings would have accrued to the Government either because of urban renewal costs, or from the land cost, if NASA were to have chosen Government-owned land.

Though the cost factor of the Kendall Square site is thus inconsequential, the factors which affect its success as a research center are definitely not inconsequential. The most significant advantage of this site over all other available sites is its close proximity to the Massachusetts Institute of Technology, one of the great academic fountainheads of electronics research and technology. Government research laboratories, of which we are one, do not have the flexible

salary scale which is available to industrial research laboratories; we cannot offer exceptional salaries to the exceptional, top of the class, student as industry can and does. Accordingly, for us to attract outstanding, research-minded, graduates, we must have other inducements which can compete with the salary inducements of industry. We believe strongly that at Kendall Square our proximity to MIT and to Harvard (two subway stops) is such an inducement, that this proximity will enable us to recruit successfully outstanding bachelor's degree graduates who wish to continue on to a Master's or Doctor's degree. We believe that these candidates will quickly recognize that their attendance at classes and seminars at MIT or Harvard will involve a minimum amount of lost time. We believe that they will value highly the opportunity to "rub elbows" with the scientists of the entire MIT complex, including not only those who are professors at the university itself, but those who are doing important research at the many special institutes which are part of MIT. These include the new Earth Sciences Building, the National Magnet Laboratory, the Research Laboratory for Electronics, and

many others. Harvard also furnishes the NASA Research Center with extraordinary opportunities for the interchange of ideas in many areas of science and technology. Harvard has also indicated it will do much to assist our scientists in the matter of graduate study opportunities. I quote from a recent article in the Boston Globe:

"Harvard University expects to liberalize some of its requirements for doctors' degrees to accommodate young scientists of the National Aeronautics and Space Administration's Electronics Research Center.

"Dean Franklin Ford of the Faculty of Arts and Sciences said Tuesday he is optimistic about cooperation between the university and NASA.

"He is chairman of a five-member committee to arrange such cooperation.

"'Basically, NASA is interested in having some of its young scientists accepted here for part-time work in their Ph.D.'s,' Ford explained.

"'This would require the university to liberalize its regulations in two respects. First, allowing part-time work and, second, accepting thesis research done

elsewhere than at Harvard.

"I think that the university will agree to cooperate with these needs. We were pleased to find that NASA will be liberal with the time its scientists can devote to graduate work. It will be as much as half working time.'

"The committee met in October with NASA director Winston Kock.

"We had a very good impression of that administration and its appreciation of what the university can and cannot do so far as its personnel are concerned,' Ford said.

"He expects as many young NASA scientists to attend Harvard as Massachusetts Institute of Technology."

There will be a flow from the universities to the Center, but equally important will be the flow from NASA to the schools. In this idea-oriented atmosphere of research-oriented institutions, the flow of personnel from these universities to the Center is one major facet. We expect that eventually about 50 per cent of the Center's 900 engineers and scientists will be recent university graduates. A second major

area of interchange is dependent on the educational "atmosphere" often found in a university community. A circulation of ideas will be only natural in such an atmosphere. We in NASA visualize extensive idea "swapping" during symposia at the Center. At such symposia, we can review our own work and invite consultants to review theirs. This is what we want to do in our seminars with the universities--attract men who are leaders in their fields to join with NASA personnel in stimulating discussions that will interest them and the community as well. Here an additional area exchange is suggested. Consultations will be in order between NASA's top-level scientists and those at neighboring institutions.

Dr. Charles H. Townes, provost of MIT has stated, "We are looking forward to many rewarding interchanges with members of the professional staff of the new NASA Electronics Center.. As is traditional among scientists and engineers, the physical forms appropriate for these intellectual exchanges will evolve with time out of need and interest."

Thus we echo the feeling that it is the same two

reasons, MIT and Harvard, which make the Kendall Square site, with its close proximity to both, one of the strongest attractions of New England for us.

With the technical strength we expect to attract to the Center as evidenced recently by the addition to our staff of two of the nation's top scientists, Dr. Lester Van Atta, a distinguished leader in microwave research, and Dr. Crawford Dunlap, the well-known solid state inventor and scientist, we believe that we can, with the help of the marketing talents existing in industry, recruit efficiently to our aid the nation's great industrial research strength. For it is only through the team research effort of industry, universities and NASA's research centers, that NASA can fully live up to the challenge it has accepted, that of making the U. S. space effort one for which our entire nation can be proud.