

Please file
in Biog. file
(misHalle) R

623

3/31/32

CALVIN WINSOR RICE

His Work in Professional-Society Organization

a'97
F'12

By KARL T. COMPTON¹

I DEEM it a great privilege to take part in this tribute to Dr. Calvin W. Rice. There are many others who could speak more eloquently than I, and who are better qualified than I to speak through having worked shoulder to shoulder with Dr. Rice on various phases of his activities during the past twenty-five years. Yet I am glad for the privilege because it is the Institution which I represent which gave Dr. Rice his collegiate education in engineering and which he now serves as an active member of its Corporation.

The other day the great airship *Akron* came sailing over Boston—a beautiful sight, with graceful, simple lines and calm, majestic flight. I could not help but think how little the ordinary man realizes how much of mankind's best thought and work lie behind that serene, smoothly running vessel. Think of the discovery of helium and the remarkable development of its production on a large scale; think of the perfection of rubber fabric and of the research which has gone into the production and studies of strong light alloys; think of the long development of heat engines; think of the conflicting theories that men have argued over, beginning with caloric and phlogiston and coming right down to theories of fatigue and plastic flow of metals—all related to the operation of the airship; think of the meteorological studies and the development of aircraft instruments! Little does the ordinary man realize what has gone on behind the scenes to make possible the great airship!

Similarly I think of the A.S.M.E.—a great, smoothly running machine. How little does the average member, and still less the non-member, realize what countless hours of planning, of work, of discouragement, and of achievement have been spent in creating the organization that we have today! And at the very center of this creative work during the past twenty-five years has been the man whom we have met to honor tonight.

I am going to give you a very brief sketch of Dr. Rice's work for the A.S.M.E. A knowledge of this work cannot but give you, as it gave me, a better appreciation of him and of the Society which he has so effectively served. Unfortunately I have not been an eye-witness of most of the events in the narrative, so that I have had to rely largely on published records and on testimony of Dr. Rice's colleagues for the information. I feel, therefore, that I should both preface

¹ President, Massachusetts Institute of Technology, Cambridge, Mass.

Address at the Annual Dinner of the A.S.M.E., Hotel Astor, New York, Wednesday, December 2, 1931, preliminary to the presentation of Honorary Membership in the Society to Dr. Rice.

and conclude my remarks after the manner of a certain preacher.

Newly called to a city pulpit, with the reputation of being an excellent pastor but a poor preacher, he agreeably surprised his congregation by preaching one splendid sermon after another. But one thing puzzled his listeners: he always prefaced each sermon by raising his hands high to the left, and concluded it by similarly raising them, but to the right. When he was finally asked what these gestures signified, he replied, "Oh, those are the quotation marks."

Dr. Rice was born at Winchester, Massachusetts, on November 4, 1868. After attending public schools in Boston, New Haven, and Winchester, he spent four years as a student in the Massachusetts Institute of Technology, from which he was graduated in 1890 with the B.S. degree in electrical engineering. He then held successively positions as assistant engineer in the Power and Mining Department of the Thomson-Houston Company in Lynn; as engineer in the General Electric Company in Schenectady; district engineer for that company in Cincinnati; engineer with the Silver Lake Mines in Colorado; consulting engineer for the Anaconda Copper Mining Company in Anaconda, Montana; electrical engineer of the Kings County Electric Light and Power Company, and later with the New York Edison Company and the Consolidated Subway Company; vice-president of the Nernst Lamp Company; and consulting engineer with the General Electric Company at New York. It was from this rich and varied experience in electrical, hydraulic, and steam engineering, combined with managerial and executive work, that Dr. Rice was called to the secretaryship of the A.S.M.E. in 1906.

TWO OF DR. RICE'S GREAT SERVICES TO ORGANIZED ENGINEERING SOCIETIES

It was even before 1906 that Dr. Rice performed two of his great services to organized engineering societies in America. He joined the A.I.E.E. in 1897 and the A.S.M.E. in 1900. Almost immediately he, with others, participated in the first cooperative project of the four great national engineering societies, namely, the establishment of the John Fritz Medal. He was then serving on the Society's Committee on Meetings.

In 1902, as Chairman of the Building Committee of the A.I.E.E., he called a dinner meeting of the committee, together with the president of the A.I.E.E., Prof. Charles F. Scott, and several others, to discuss plans for a modest building for the Institute primarily to house the Latimer Clark Library, which had been presented to the Institute by Dr. S. S. Wheeler on the

condition that a fireproof building be secured to house it. The Committee had, at that time, definite prospects of only about \$250,000. When President Scott suggested that consideration be given to the possibility of a building for housing the four National Engineering Societies, with a common library and a common auditorium and individual rooms for the headquarters of each society, doubts were expressed as to whether the four societies could be brought into such a cooperative project.

Strenuous efforts, which were at the last minute successful, were made to get Mr. Andrew Carnegie as a guest at the next annual dinner of the Institute. At this dinner President Scott outlined his ambitious plan and pointed out its fine features—including the library.

The next day Mr. Carnegie asked Dr. Rice to come to his residence at five o'clock, and Dr. Rice, with characteristic thoughtfulness of others, as well as admiration for the lofty character of his president, brought with him Professor Scott. There Mr. Carnegie asked them further about the work of the Institute, about the finances of the engineering societies, about the relation of the proposed building to the Engineers' Club (of which he was a member). Dr. Rice cleverly inferred that an obstacle in Mr. Carnegie's mind was the securing of the land, for the latter was not in the habit of buying the land on which the libraries which he donated were built. Dr. Rice then optimistically remarked that the Engineering Societies would be able to provide the land, whereupon Mr. Carnegie gave a cheerful smile and said, "If you can provide the land, I will put up the building." Dr. Rice was made chairman of the building fund.

Then the money had to be raised to buy the land; complications and difficulties in perfecting the organization and developing the plans had to be overcome. In the words of Professor Scott, "Mr. Rice's devotion to the idea of a building for the Institute and his skill in directing the early conference with Mr. Carnegie and his enthusiastic and faithful assistance in subsequent service to the Institute in carrying out the project were fundamental factors in the creation of the Engineering Societies Building and the separate building for the Engineers' Club."

INTERNATIONAL CONTACTS ESTABLISHED BY DR. RICE

It is of course impossible in this short summary to enumerate more than a few of the incidents to illustrate Dr. Rice's method and the international contacts he has established.

In 1901 when Marconi first succeeded in receiving signals across the Atlantic by radio and Dr. Rice was satisfied that they had actually been received, he proposed public recognition of the inventor by means of a banquet. At first he met with opposition, but he persevered until he obtained the willingness of two outstanding men of science to express their confidence by attending as guests of honor, and with this assurance a successful dinner was held.

In 1902 Dr. Rice proposed, and was made chairman of, a committee to arrange a reception for Lord and Lady Kelvin. As he tries uniformly to secure a co-

operative undertaking, always thinking in terms of the object to be attained rather than of the credit for the undertaking, Dr. Rice secured joint patronage for this event from the National Academy of Sciences, the New York Academy of Sciences, and the four national engineering societies. The reception took place in the gymnasium of Columbia University, and more than two thousand attended.

Contacts with foreign engineering societies began in 1897, when Dr. Rice obtained much valuable information from two especially able secretaries—James Forrest, of the Institution of Civil Engineers, and Dr. T. H. Peters, of the Verein deutscher Ingenieure. Later, in 1904, he was assistant chairman of a committee to arrange a circular tour of the United States by the Institution of Electrical Engineers.

In 1910 Dr. Rice had a most unique experience, an account of which has never before been published. That year the A.S.M.E. made a return visit to the Institution of Mechanical Engineers at their Birmingham meeting. Remembering that in a modest way the A.S.M.E. had contributed to the memorial window in Westminster Abbey to Sir Benjamin Baker, Honorary Member, A.S.M.E., Dr. Rice wrote to the Dean asking if it would be permissible for the members of the A.S.M.E. when passing through London on a certain Sunday, to visit the Abbey and view the window. Not only was permission granted but a special service was arranged, with a sermon on engineering by the Bishop of Lewes, and on this occasion the "Hallelujah Chorus" was rendered by the full surpliced choir. The event was further made memorable by having the A.S.M.E. audience arranged in a semicircle about the memorial window, the movable pulpit having been placed beside it.

Dr. Rice noticed that every window in the entire Abbey, save one, was a memorial window. The unappropriated window was apparently an original plain-glass window and was very dull by comparison. The next day Dr. Rice called on the Dean to express gratitude, and in conversation commented on the unoccupied window. The Dean immediately responded that the Abbey would appreciate a gift of a memorial window. Dr. Rice thereupon sensed the situation and offered a window, knowing it would be an easy matter to collect from the entire English-speaking world an amount sufficient to install a window to an engineer.

Among Dr. Rice's souvenirs is a letter from the Dean of the Abbey agreeing to accept such a window.

Dr. Rice proposed a window to his friend Lord Kelvin as one mutually desired by the Abbey and by engineers. Consistently he arranged that this memorial be provided through the cooperation of the engineering bodies of Great Britain and the United States. Having obtained instant approval of influential persons in England, he used the same method in the United States and, when the undertaking was assured, placed the whole proposition in the hands of the Institution of Civil Engineers, the oldest and most important engineering organization in the world, for announcement of the popular subscription.

The result was so successful that not only was the window provided but the Kelvin Medal was founded. This is probably the only joint undertaking of this nature by the English-speaking world.

In 1911 when Dr. Rice, who previously had frequently visited the Deutsches Museum and become acquainted with its Director, Dr. Oskar von Miller, learned that a mission from the Museum was to visit the United States to inspect technical museums, he obtained permission from the officers of the A.S.M.E. to offer by wireless the services of the Society in arranging a suitable itinerary. Through local committees Dr. Rice arranged receptions by Columbia University, Mr. Schiff, Mr. Carnegie, President Lowell of Harvard, Chicago University, and at Washington and Philadelphia. As a result the entire Society was invited by the Verein deutscher Ingenieure to visit Germany in 1913, Dr. von Miller at that time being both president of the V.D.I. and director of the Deutsches Museum. Upon acceptance of this invitation Dr. Conrad Matschoss spent six months in the United States visiting the principal sections and working up the details of the visit. Three hundred and sixty went to Germany from this country, chartering the remodeled S.S. *Deutschland*, renamed the *Victoria Louise*, for the trip.

ESSENTIAL PERSONAL QUALIFICATIONS AND PRINCIPLES EXEMPLIFIED IN DR. RICE'S WORK

These early activities of Dr. Rice's exemplify some of those personal characteristics and adherence to those principles which seem to me the essential qualifications for a successful leader in any professional-society organization.

As personal characteristics I would list in order:

- 1 Ability and desire to cooperate with others
- 2 Ability and judgment to recognize a good project when it is suggested
- 3 Initiative and drive to carry a project through to completion, and
- 4 Daring to undertake an audacious project, once convinced of its merit.

As principles underlying society organization and operation I would list:

- 1 Unselfish cooperation with other related societies
- 2 Planning actively for the future, so that development may not be haphazard, and so that opportunities for development in the desired direction may be quickly and firmly grasped when they present themselves.

All of these qualities and principles you will see strikingly evident in the two examples I have given—the John Fritz Medal and the Engineering Societies Building.

But there are still other essential personal qualifications and principles, all of which are exemplified in other phases of Dr. Rice's work, which I should like to list and then briefly discuss.

Additional necessary personal qualifications are:

- 5 Originality of thought.

Dr. Rice gave a striking example of this when in 1902 he first suggested to the Chief of Staff of the U. S. Army a plan for forming the Officers' Reserve Corps and the R.O.T.C., later worked out by Dr. Rice with General Wood when Commander of the Department of the East, and by a joint committee of the Engineering Societies under the chairmanship of General Barclay Parsons.

- 6 Ability to organize, to delegate authority to others, and to spur others on to take active part in the affairs of the society.

These attributes of Dr. Rice are strikingly illustrated by the remarkable committee activity of the A.S.M.E., with its active committees on publications, on meetings, on research, on standards and codes, on professional ethics, etc. They are also strikingly shown by the sectional branches of the Society, both on a subject basis and on a geographical basis.

One interesting corollary of this ability to organize is fundamental unselfishness. No man who is fundamentally selfish can occupy the key position in an active, smoothly running, and progressive organization. President Lowell of Harvard once said to me, while discussing the philosophy of administration, "No man can accomplish any great thing and get the credit for it at the same time. If he strives for both, the chances are greatly against his achieving either."

Additional principles of successful society organization appear to me to be the two following, and these are the most fundamental of all. I think they are equally important.

- 3 The first objective must be to give the most effective service to the members of the profession
- 4 The second objective must be to lead the profession in rendering the most valuable possible service to society.

In these two statements there is much food for thought. I would call attention to only a few implications.

To give effective service to members of the profession, the society must give them what they want, and this involves many things. It must give them helpful information. It must give them opportunity for self-expression, whether this be through publications, conferences, organization and administration, or otherwise. It must skilfully arrange so that the most progressive ideas of the best leaders quickly and spontaneously become the objective of the main group.

TWO OPPOSING PHILOSOPHIES OF SOCIETY ORGANIZATION

There are two opposing philosophies of society organization on this point. One is the autocratic philosophy, which involves the direct control of the membership, for their own good, by an individual or small clique of supermen sitting in the seats of authority. In favor of this we may point out the probable consistency of program, the wisdom of decisions, and lack of confusion of ideals and operations.

The other philosophy of organization is the democratic one. Its ideal, as I see it, is to give every member the maximum individual opportunity for contributing to the progress of the profession and the welfare of the society. Its advantages are that it tends most rapidly to develop the individuals and to create in them a live interest in the purposes of the society, and that the sum total of the valuable contributions by the members is likely far to exceed those simply of a chosen few.

Time and time again experience has shown the relative defects of the autocratic system. It is not sufficiently sensitive to changes—to the march of progress; it deadens rather than quickens the interest and activity of the membership; it frequently runs into rebellion and secession by active groups who chafe with the urge for individual activity. In my judgment, any society whose leaders gain the feeling that wisdom is implanted in them alone, and that they must exercise it for the benefit of the common herd, is in for either a slow or a violent death.

THE A.S.M.E. AN OUTSTANDING EXAMPLE OF THE DEMOCRATIC PHILOSOPHY OF ORGANIZATION

The A.S.M.E., on the other hand, is the outstanding example of the democratic philosophy of organization. With almost ten per cent of its members serving on active committees, no other society of which I know can surpass it in the effectiveness of its *esprit de corps*, its development of leaders, its rapid improvement in the standard and status of the profession, and its helpfulness to its individual members.

Coming finally to the last objective, that of rendering service to society, I would simply affirm my belief that the right of any organization to public recognition

and support, and even its right to exist in this overcrowded planet of ours, is measured entirely by its service to society. You have a right to your organization, you have a right to your own existence, you have a right to the profits (if any) of your work, in the last analysis, only because society needs mechanical engineering and mechanical engineers. Our enthusiasm for the profession is due to the fact that we believe that still more and better engineers will be needed in the future, and that the engineer, if properly skilled in his art and at the same time responsive to the social and material needs of the public, can make an even greater contribution to public welfare than he has made in the past.

It is a sign of strength in the A.S.M.E. that the Society has so clearly recognized the social responsibility of the engineer. It has sought to express this responsibility in a code or motto. It has actively expressed it through its work in standardization and construction codes. It has exemplified it by itself behaving like a social being through cooperation with other related bodies both national and international.

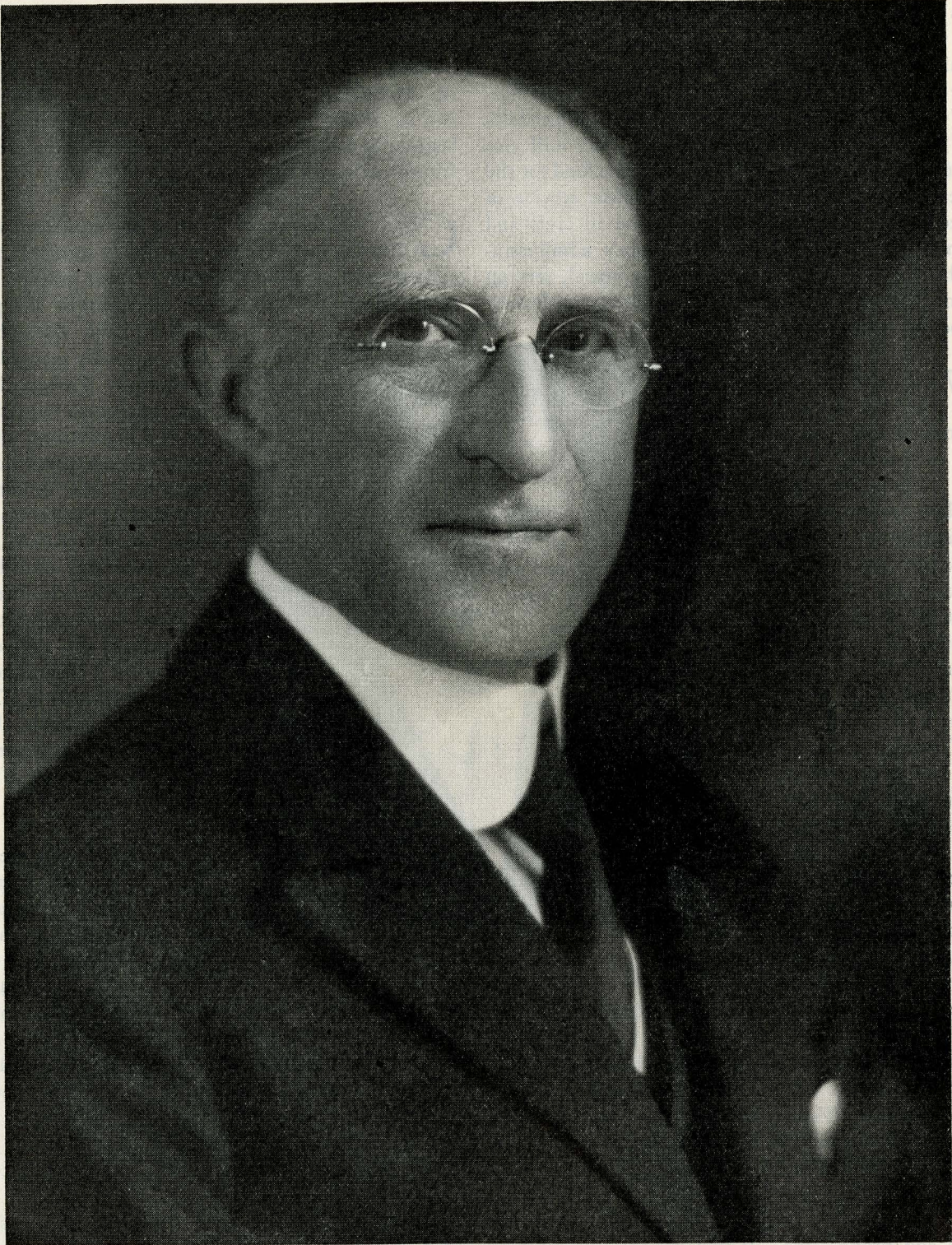
Finally, permit me to say that the A.S.M.E. has been a great leader in working out a constructive, effective plan of society organization, and to say that the man whom we honor tonight is putting the genius of a great life's work into developing this organization for the direct service of its 20,000 members and the direct service also of the nation and the world.

And now, Dr. Rice, an authority has said that the greatest satisfaction of life is the realization of duty well done. On this twenty-fifth anniversary of your undertaking the secretaryship of this Society, that satisfaction is yours. We wish you many happy returns of the day.

Mechanical Aspects of Electricity

THE question of what lay behind the exercise of mechanical forces between electrons themselves or between electrons and positive ions was akin to what caused the mechanical attraction called gravitation. It would appear that while the electron had made easier the conception of what went on in material bodies, it had also made it more difficult to conceive what happened in the electric or electromagnetic field in a vacuum. Mathematical physicists had at present abandoned the attempt to give a mechanistic interpretation of what lay behind the phenomena of attractions and repulsions, and the purely mathematical treatment which employed symbols conveying no physical meaning must appear very nebulous to the mechanical engineer. To the engineer there seemed to be no escape from the fact that the actions discussed involved the interchange between visible motion and invisible motion. Potential energy in a raised mass was a fact, but no mental conception could be had of anything having happened except that

some invisible motion remained in the space between the earth and the body, which would cease when motion was again given to the mass as it fell to the ground. So, when electrons were removed from positive ions by mechanical motion, it seemed that there must be some motion somewhere as the equivalent, representing the mechanical work, which would reappear from the surrounding field when it collapsed by the return of the electron to the atom to which it belonged. The fact that proof had been obtained that magnetic fields were due to electron rotations premised again rotational energy as the form of energy hidden from sight but, nevertheless, existing and which could presently be recovered from the magnetic field. These ideas might in some way incorporate themselves in the explanations which would emerge in the future.—From report in *Engineering*, Nov. 13, 1931, of lecture by Llewelyn B. Atkinson, F.K.C., before the Institution of Mechanical Engineers.



Harris and Eving

Calvin Winsor Rice