therein emblematic of the purpose of the institution, the beneficence of science, the origin and advancement of chemistry and the value of industrial research. This symbolism was devised by Dr. William A. Hamor, of the institute's executive staff, in cooperation with Janssen and Cocken.

In closing this memorable occasion, I wish to acknowledge with thanks the loyal support which the institute has received from Mr. Henry A. Phillips, our treasurer and a trustee, who has guided us successfully to the completion of the building. We are also grateful to Dr. John G. Bowman, chancellor of the University of Pittsburgh, who has had a very important part in the development of the institute. We maintain close cooperation with the University of Pittsburgh and are deeply appreciative for the splendid support of that institution.

Then, again, let me express our thankfulness to our founders for this splendid institute, which they have created, and, to quote from Dr. Murphy's address, "let us hope that, with the help of men trained in such an institution as this one, the results of research may produce even greater happiness, health and a longer and more efficient life than is now possible."

ROBERT KENNEDY DUNCAN[1]

By Dr. B. T. BROOKS

NEW YORK, N. Y.

IT is impossible to return to Mellon Institute without feeling that the influence of Robert Kennedy Duncan is alive and is a vital force here to-day, even though there are very few of the fellows here who were here when he was alive. It is appropriate to speak of his character here, because I believe that in many respects the character of Robert Kennedy Duncan is the character of Mellon Institute to-day.

I wish that I had his wonderful gift for expression, his beautiful diction. In speaking of the character of Dr. Duncan I feel a great responsibility, since I am for the moment the mouthpiece for those who knew him well and loved him. I do not presume to give you an appraisal of his character. In my opinion the professional biographers who have attempted to psychoanalyze great men have generally done a very poor job of it. And so I shall speak only of a few of the traits of Dr. Duncan's character which most impressed me, and if I omit other qualities which may have greatly impressed others, I admit that the fault is entirely mine and plead also that lack of time prevents making this picture of him as complete as I would like.

There were several outstanding traits of character which I believe could not fail to impress any who were associated with him. These traits were what I term his complete honesty of purpose; second, his great courage and intelligent audacity, and, third, his human qualities. Speaking of Dr. Duncan should not cast a moment's shadow on this very happy occasion. The atmosphere here is in some respects like the celebration of a victory, a victory which was planned by him, together with Mr. Andrew W. Mellon and Mr. Richard B. Mellon, who understood Duncan and his purposes. There is, I think, another element in this celebration which I can only describe as something which warms the heart, and which I associate with those human qualities of Duncan's, and which I believe has come down through the years with those who understood him and have carried on.

Some of you may wonder how all this achievement represented by the new Mellon Institute and its splendid record of past performance has come about. Was it merely that Duncan had conceived a plan of practical cooperation between science and industry, or was it merely that the Mellons had anticipated the New Deal and were seeking for ways to spend money regardless of result?

No, I think it required more than wise planning and resourcefulness to have accomplished what has been done. I believe that one key to the mystery, one cardinal element which made all this possible, was the character of Robert Kennedy Duncan.

It is always interesting to examine the career of a great man and try to discover the more or less hidden clues to his success. In Duncan's case it would be trite to say that he inspired confidence and had rare qualities of leadership.

I assure you that the quality of leadership is still a great deal of a mystery, like genius, and is the subject of a great deal of inquiry. We still debate or privately wonder as to whether or not such great leaders as Jeanne d'Arc or Abraham Lincoln were not really more than mere human clay. We find the rare combination of qualities that we vaguely call leadership in utterly different types of men. Several years ago the American Engineering Societies made a study of the elements conducive to success among engineers. The opinion expressed by the vast majority of about sixteen thousand questionnaires placed character above all other essentials. Some of our military authorities from a study of great military leaders, and failures, have come

[1] Address delivered at the trustees' dinner in connection with the dedication of the new building of Mellon Institute.

to the same conclusion, but the term character alone does not tell us much.

I have mentioned Duncan's complete honesty of purpose. One could not fail to sense this, as Burke said in his great speech on the conciliation of the American Colonies—"Plain honest good intention is as easily perceived as its opposite." Polonius, in Hamlet, uses the phrase, "by indirections find directions out." This was never Duncan's method, and I am told that the confidence of Andrew Mellon and Richard B. Mellon in Dr. Duncan dated from their first interview with him. This quality was of immense value in his leadership when director of the Mellon Institute, since all of us felt that whatever he requested of us must be right. I am sure that this quality impressed industrialists and has led to the establishment of many a research in Mellon Institute entirely aside from other considerations. One day he said to one of the fellows: "Boy, you have discovered something that may be quite valuable to another fellowship and I am going to ask you to give it to them. Understand, you have every right to it and it may seem to you that there is no justice in my request, but, you know, the fellow who is always seeking justice never gets it and is always in hot water." Honesty of purpose is certainly one of the foundation stones of Mellon Institute.

I have often asked myself what his views would have been regarding some of the political and economic feuds of to-day. He would have deplored the class hatreds that are now so rampant. Envy was not in him. He believed there was room for everybody, with work and the possibility of gracious living for all. He often said, "Never be afraid of too much research. We are only spooning up the ocean."

If labor leaders and employers generally had Duncan's point of view, how much easier it would be to settle labor disputes. Barring those cases where passion has been raised, I am sure Duncan could have settled any labor dispute in spite of the fact that he had little of the judicial calm and patience usually supposed to be necessary to adjust such disputes. His pulse beat fast. He was capable of strong emotion and was full of nervous energy; but with his directness and honesty of purpose I know he would have won where too much so-called tact would only have aroused suspicion.

We all found out, after a time, something of what his greater purposes were. He thought deeply of our economic future, and while he would not have proposed that the fullest cooperation of science and industry would be a panacea for all our ills, we did know that this plan was directed toward a future when every one would be able to live fuller, richer and more purposeful lives. How much more rational to attain the more abundant life through the cooperation of science and industry than through experiments with the law and political hocuspocus.

One great quality of Duncan's was his intelligent audacity. This quality is absolutely essential to leadership. People will follow a man who only seems to have this quality regardless of other considerations. Duncan's intelligent audacity was shown by the originality of his industrial fellowship plan, and the intelligence and soundness of the plan is fully attested by the dedication ceremonies in which we are here to participate. His intelligent audacity was also shown by his prophetic statements in his book, "The Chemistry of Commerce," as to what industrial research would achieve. Many of the major prophecies which he made at that time have since been fulfilled. This quality of audacity is generally associated with youth, but it is not always so, and I believe Duncan, at eighty years of age, would have shown enough courage and audacity to have qualified him as a Democratic nominee for the Supreme Court.

It has been pointed out that all Napoleon's marshals became conservative and slow with twenty added years. It was feared at Richmond in 1861 that Lee was too old and that he would be too conservative, but one of his closest friends said that he was one of the most daring men in the army and that Audacity was his middle name. No one ever expressed such views after the campaign of the Seven Days. Barrie in his essay on courage, which he delivered when installed at St. Andrews, spoke of the days when as a cub reporter he lived in a little back hall bedroom, and said, "Those were the days!" of high courage. Yet the elderly Barrie at St. Andrews had evidently lost none of this precious quality.

We need this kind of leadership in research. The greatest rewards in research go to those who have the audacity to break into new fields. Duncan recognized, however, that careful, systematic work was also required and he said that some researches were like a brilliant, daring assault and that others were like siege operations.

It is easy, of course, to be audacious without intelligence, but not in business nor in scientific work. It is only in the field of politics where, as Machiavelli suggests, a great failure can be covered up by the brilliant pyrotechnic display of a new venture.

Some years ago another forceful character, Paul C. Freer, visited a famous research institute, and when asked what they were doing there, he replied "Practically nothing but worshipping at the tomb of the founder." This will not happen here, for the Mellon Institute does not even now completely attain the goal which was set. It is founded upon a dynamic idea, still feels the dynamic influence of its first director,

and the complete satisfaction of human needs and our thirst for new knowledge is beyond the capacity of our imagination.

Other elements of Duncan's leadership were his very human qualities, his warm sympathy, his capacity for emotion and his genuine interest in his associates. These qualities are certainly essential attributes of great leadership. Every soldier in Napoleon's army heard of how after midnight before the battle of Jena the little man took a lantern and helped a squad of gunners get a gun out of the mud and up the slope to its position. Duncan was interested in the personal success of every youngster who worked in these laboratories. He would often put his head through the door of one of the laboratories and say, "Boy, are all your problems solved?" We knew, after a little, that he meant more than our immediate research difficulties. And so I can easily imagine him repeating that question here to-night, notwithstanding this splendid building built by the Mellons, who believed in and shared his vision for better things for us all. Duncan might remind us gently that it is no time to rest on our oars, and he might even say to our director, "Boy, are all your problems solved?"

SCIENTIFIC EVENTS

SYMPOSIA AT THE DENVER MEETING OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

SINCE the association covers practically the whole field of pure and applied science, it is in an especially favorable position for organizing symposia, particularly on subjects which extend across the borders of special sciences. Indeed, no other American society or association is so well qualified by breadth of interests, large membership, organization into sections and means for publication as is the association for promoting authoritative general synthesis of scientific knowledge. The Denver meeting from next June 21 to June 26 gives every promise of maintaining the high standards in symposia which have been set at earlier meetings.

It will be remembered that at the Atlantic City meeting last winter the Section on Medical Sciences (N) organized a symposium on cancer. The program consisted of 31 papers, which together cover in a systematic manner essentially all that is now known about this dreaded disease. These papers are being brought out in book form under the editorship of Dr. Henry B. Ward. Therefore, medical investigators and practitioners will soon have available at low cost a compact general survey of one of the most important fields of medicine.

At the approaching Denver meeting, the Section on Medical Sciences will present another symposium by distinguished investigators, this time on diseases caused by acid-fast bacteria. This symposium will be characterized by the same thorough planning as that on cancer, the papers falling under four general headings which together cover the whole field. The first will give a review of the bacterial, chemical and pathological characteristics of acid-fast bacteria. The second group will be devoted to tuberculosis and other animal diseases of acid-fast bacterial origin; the third, to leprosy; and the fourth, to human tuberculosis. At the Indianapolis meeting next winter, the same section will present a symposium on syphilis.

A symposium on a widely different subject is being organized for the Denver meeting under the joint auspices of the Ecological Society of America and the association, Dr. H. de Forest representing the former society and Dr. Henry B. Ward the latter. This symposium, which is on "The Scientific Aspects of the Control of Drifting Soils," is also one of a series under a continuing sponsorship. It also has to an exceptional degree both purely scientific and highly practical aspects, and it ranges broadly across geological, climatological, botanical and economic fields.

At another extreme is a symposium on "Cosmic Physics" by the Section on Physics (B) and the Pacific Coast Branch of the American Physical Society. Obviously, this subject has no present direct bearing on such practical questions as health or natural resources. Yet it stimulates the imagination and broadens the spirit. Its appeal is akin to that of philosophy and religion, and in the long course of time it may prove to be even more important to us as thinking beings than many of the so-called practical subjects.

Among other symposia which will be presented at the Denver meeting is one on "Rocky Mountain Spotted Fever," under the joint sponsorship of the Section on Zoological Sciences (F) and the American Society of Parasitologists; one on "Forests and Waters," under the sponsorship of American Foresters; one on "Air-mass Analysis as Applied to Western United States," including the "Dust Bowl" problem, under the auspices of the American Meteorological Society, and one on "Radio Transmission and Solar Phenomena," under the joint auspices of the Section on Astronomy (D) and the Astronomical Society of the Pacific.

This brief sketch of the principal symposia that will be presented at Denver shows the richness and variety of the scientific programs of the approaching meeting of the association. To all these attractions, as well as those of the general lectures and the special programs of the fifteen sections and numerous related societies, are added the unsurpassed summer climate of Denver