ish comments are to be elucidated in the light of philosophic systems and physical doctrines of his own day.

In order that the true extent of Leeuwenhoek's discoveries may be appreciated competent specialists will add critical notes on contemporary writings and backgrounds in scientific, historical and cultural fields. Thus Leeuwenhoek and his contradictors will be seen in the frame of their own day and society. Each volume will have a list of illustrations, indices of objects investigated and persons named by Leeuwenhoek or referred to by the commentators and annotators and a bibliography of all pertinent books and writings. Portraits of Leeuwenhoek and of persons concerned with his writings and a reproduction of a page of his manuscript will also be included. The concluding volume will contain a life of Leeuwenhoek and critical estimates of his achievements in various fields.

Volume I of the series contains his letters, 1 to 21 inclusive, written in the years 1673–1676 with details of his discoveries on a great assortment of objects ranging from a body louse to tobacco smoke on glass, from human red blood cells to a cat's whiskers and a crystal of rock salt to the smoke of arsenic. The biographical register has brief lives of 53 contemporaries and predecessors from Archimedes to Vesalius. The illustrations fill 39 plates. Their adequacy appears in the fact that Leeuwenhoek's figure of the body louse is supplemented by that of Redi (1671) and Hooke (1665). The frontispiece is the portrait of Leeuwenhoek from the painting by Johannes Verkolje dated 1686, in the Royal Museum of Amsterdam. There is also a portrait of Regnier de Graaf after Watelet and a series of figures of Leeuwenhoek's microscopes.

This is an indispensable work for every scientific library and a great addition to the literature of the history of science. The whole enterprise is a splendid example of cooperative effort in the field of the history of science, demonstrating the critical and permanent values and the stimulus to scholarly effort arising from such an enterprise.

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REPORTS

MEMBERSHIP OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

The American Association for the Advancement of Science was organized in 1848 with an initial membership of 461, and its first meeting was held in Philadelphia on September 20. Although the association is now nearly 100 years old, there are two other American scientific societies which were organized much earlier, the American Philosophical Society Held at Philadelphia for Promoting Useful Knowledge (to give it its full name) and the American Academy of Arts and Sciences, of Boston, Mass. The American Philosophical Society, which was incorporated on March 15, 1780, grew out of Benjamin Franklin's club, called the Junto, which was started in 1727. The American Academy of Arts and Sciences was granted a charter from the Commonwealth of Massachusetts on May 4, 1780.

For the first 50 years after its organization the membership of the association grew slowly, the number of members by decades until 1898 being as follows:

Year	Membership	Meeting Place
1848	461	Philadelphia
1858	962	Baltimore
1868	686	Chicago
1878	962	St. Louis
1888	1,964	Cleveland
1898	1,729	Boston

A new period in the history of the association began in 1900 when *Science* became its official journal and was sent to all its members. Under the direction of Dr. J. McKeen Cattell and other able men who clearly saw that the association might be made a powerful agency in advancing American science, its membership doubled within two years and grew steadily until the close of the World War. During the decade 1920–1930 the association made its greatest growth, partly because of the impetus given to science by the war, partly because of the rising tide of prosperity in the country and especially because the council elected Dr. Burton E. Livingston permanent secretary of the association. The membership by five-year intervals from 1900 to 1930 as of September 30 was as follows:

Year	Membership	Meeting Place
1900	1,925	New York
1905	4,041	Philadelphia
1910	7,950	Boston
1915	8,325	Philadelphia
1920	11,442	St. Louis
1925	14,263	Washington
1930	19,059	Cleveland

During the decade from 1930 to 1939, inclusive, the association suffered from the effects of the depression and the recession. Yet in spite of serious losses in membership in 1932, 1933 and 1935, its membership is now greater than at any previous time. Details of membership data for the decade are given in Table 1.

Present trends in the membership of the association are indicated in the averages for the years 1937–1939. Since the gross loss in membership averages about 1,185 per year, the total membership of the association will decrease unless on the average about 1,185 persons become members each year. Although the gross loss in members may at first appear to be large, it is less than 6.2 per cent. of the total membership. Of the average of 1,185 persons who ceased to be members,

TABLE 1

Year	Membership	New members	Deaths, resignations, etc.	Net change
1930 ...	19,059	1,507	910	+ 597
1931 ...	19,889	1,977	1,147	+ 830
1932 ...	19,665	1,397	1,621	− 224
1933 ...	18,549	833	1,939	−1,116
1934 ...	18,553	2,029	2,025	+ 4
1935 ...	17,937	1,171	1,787	− 616
1936 ...	18,242	1,513	1,208	+ 305
1937 ...	18,303	1,142	1,081	+ 61
1938 ...	19,347	2,156	1,112	+1,044
1939 ...	20,195	2,210	1,362	+ 848
Average ..	18,974	1,594	1,419	173
Average '37–'39 .	19,282	1,836	1,185	651

218 died, 452 resigned and 515 failed to pay their dues. Of those who resigned, a large fraction gave retirement or lack of funds as their reason for resigning. The same reason probably applies to an appreciable fraction of those who simply neglected to pay their membership dues without giving their reasons. Finally, there are members who do not find their membership in the association worth what it costs them (1.4 cents per day) and who do not wish to make a contribution to the association.

One can not read the letters of retired scientists, expressing their deep regret at being compelled to discontinue their membership in the association, without wishing that the association had an endowment sufficient to provide their membership dues upon their retirement from active work, provided they had attained the age of 65 years and had been members of the association for 15 consecutive years (other time limits, of course, might be set). The questionnaire sent out for information desired for the new directory of members of the association will make it possible to determine how much endowment would be required for this purpose.

The resignations and failures to pay dues because members do not feel that their memberships are worth what they cost may be taken as reflections upon the association, although it can not be expected that any organization can satisfy every person. Instead of hiding behind this excuse, the officers of the association should ceaselessly continue to seek and to put into effect ways of improving its service to its members and to science. It has been with this purpose in mind that the association has undertaken to publish the most important symposia presented at its meetings. They are proving to be very gratifying successes. It is also with this purpose in mind that the association has made arrangements for the publication of non-technical books on science and for making them available to its members at substantial discounts. However, in spite of the limited funds of the association available for operations, these services to its members by no means exhaust the possibilities.

The tables that have been given show a very rapid increase in membership of the association during the decade 1920–1929, a substantial decline during the worst years of the depression and a substantial increase during the past three years. What the future of the membership will be is of course uncertain. Many factors enter into the question. One is the number of scientists in the United States and Canada. In the latest edition of "American Men of Science" the names of about 28,000 scientists are listed; there are probably 100,000 persons engaged in scientific work in this country. Probably a much larger fraction of them would become members of the association if it would serve them better. Since the meetings of the association are now so large as to tax the facilities of even the large cities, it can not be expected that any large percentage of its members can attend its meetings. They must be served otherwise—by its journals, symposia, books, branches, lectures, etc.

There are in addition what may be called lay members of the association, those not engaged professionally in scientific research but who have an interest in science as perhaps the greatest force affecting civilization to-day. The number of such persons is very large, at least a million, and they are being constantly added to by those who graduate from our universities. With a million students in the universities and at least one fifth of them taking their major sequence in some science, the additions to those who are interested in science are very great. Now what can the association do for such persons? There are three obvious things: make *The Scientific Monthly* a journal of the greatest attractiveness and distinction, arrange for the publication of non-technical books on science, and make available a list of persons who can and will deliver popular lectures on scientific subjects that will carry to lay audiences the adventure, the wonders, the importance and the intellectual honesty of science.

A large membership of the association will be of importance for two reasons. First, it will make *The Scientific Monthly* profitable and therefore enable the association to do many things it can not do now because of lack of funds. It will have the much more important effect of helping to maintain in this country a large middle class, intellectually speaking, because basically it is on this class that the future of science and liberty depend. History shows that civilizations have failed only after their middle classes have been liquidated, to use a term that unfortunately is being heard with increasing frequency. No other class than those who have caught the visions of science while keeping contacts with the everyday world will carry more ballast in time of storm. With liberties failing and civilizations threatening to crumble these are not idle words.

F. R. MOULTON,
Permanent Secretary