

EMERSON McMILLIN*

BY

DR. T. C. MENDENHALL

For more than a quarter of a century the name of Emerson McMILLIN has been a familiar one to members of the Ohio Academy of Science. Annually throughout that period, with unbroken regularity, a check bearing his signature has been received by the Academy, the proceeds of which were devoted to the encouragement of scientific research, through small grants of money, generally, though not necessarily, restricted to its own membership.

Personally he was known to a very few members of the Academy, but in the busy world of finance, material development and courageous enterprise he was known as a great leader.

Public utility engineers placed him in the very front rank of their profession. He was chosen to membership in many of the leading scientific and technical societies and for several years he served as the president of the New York Academy of Sciences.

Artists and musicians found in him a generous though keenly critical patron and in the discussion and study of world problems his reputation was international.

These things and many more are put down to the credit of one who ended the period of his formal education at the age of ten years, beginning his struggle with the world as a common laborer in a charcoal-burning iron furnace, at a daily wage of twenty-five cents. The story of the succeeding three score and ten years is like a fairy tale, though it is the story of a life in which fairies played no part. Few men who have risen to distinction owe less to fortuitous circumstances than Mr. McMILLIN and few have been so entirely "self made," in the best sense of that hackneyed phrase.

Aside from the indebtedness of the Academy to him for continued financial assistance, a body mainly composed of those professionally employed in the training of young people

* Read at the meeting of the Ohio Academy of Science at Oberlin, on March 31, 1923.

may well pause to consider a career so full of inspiring example and high ideals.

As one might infer from his name, Mr. McMillin was of Scotch ancestry, his great grandfather having emigrated to America early in the eighteenth century. His grandfather, Edward McMillin, born in Virginia in 1765, lived to be eighty-nine years old, and his father, William Reid McMillin, was born in 1803 and died in 1881. In view of his great interest in astronomy it is perhaps worth while to record the fact that I have been able to fix definitely the age of his grandfather through Mr. McMillin's recollection that on the day of his burial the sun was almost totally eclipsed, the date thus ascertained being May 16th, 1854.

All of his ancestors were people of long life and sturdy physique and from them Mr. McMillin inherited unusual physical strength and rugged health.

One of the younger members of a family of fourteen children, he was born in the small village of Ewington in Gallia County, Ohio, on the sixteenth of April, 1844. He died, after a short illness, on May twenty-first, 1922, at Darlington, his country seat in New Jersey.

During the first ten of these seventy-eight years his life was little different from that of thousands of the sons and grandsons of the hardy pioneers who emigrated from the colonies of the Atlantic coast to the Ohio valley.

There was the usual one room school in which the curriculum was limited to the "three Rs," though Mr. McMillin remembered that during one term one pupil studied English grammar, and during two terms geography was taught to one class.

It is not unlikely that his leaving school at the age of ten years was due, not so much to a necessity for self-support as to the fact that, considering the grasp of his mind and the rapidity with which he acquired information, he had at that early age absorbed and assimilated all that the small country school had to offer him.

But his love of study and thirst for knowledge did not end with his farewell to the twenty foot square school room, although it was his last and only opportunity for systematic instruction.

It is important to note, also, that work—hard, physical work—was to him a joy and he found in every task something upon which his active mind might feed.

Employed as a common laborer around an iron furnace in what is known as the Hanging Rock iron region, in two years he had mastered the mysteries of the engines, boilers and all other machinery used in such a plant, and at the age of twelve was regularly enrolled as Assistant Engineer of the furnace, having full charge of all machinery from twelve at noon to midnight, receiving a wage of fifteen dollars a month, with board and lodging, the latter being in the engine house itself.

At fourteen, being a lad of unusual physical strength, he discovered that he could improve his condition financially by becoming a wood cutter and charcoal burner, an occupation which held him until he was seventeen years of age.

In the meantime, in spite of the fact that twelve hours out of each twenty-four were spent in hard labor, he found other hours for reading and study. In this he profited greatly through the possession of a remarkable memory. For example, besides being able to spell correctly every word in McGuffey's spelling book, he could tell whether the word was in the upper or lower half of the page, and in which of three columns it would be found.

In a letter received a few years ago he told me of his first interest in the science of chemistry, which was developed during his charcoal period, though at that time he had neither seen nor heard the word "chemistry."

That he was getting something of a hold upon the science, as yet nameless to him, is proved by the fact that being allowed to construct a charcoal "pit" or furnace according to his own plans, he got from it an increase of twenty-five per cent in quantity, as compared with the usual form, while the quality was so much improved that his charcoal carried off all the prizes offered by the furnace company.

At the age of seventeen years he responded to Lincoln's first call for volunteers, enlisting as a private soldier in the Civil War, from which he returned more than four years later, a commissioned officer, with five wounds testifying to his courage in action. He was one of six McMillin brothers, all of whom entered the army, three only returning alive.

From 1861 to 1865 were four memorable years in the life of Emerson McMillin. In addition to the ordinary accoutrements of a soldier his knapsack always held three books. One of these was a textbook on astronomy; another on geology; and a third on chemistry. The astronomy enabled him to study the

heavens intelligently while standing guard at night; the mountains of West Virginia, where most of his campaigning took place, afforded excellent opportunity for illuminating the text on geology; with practical chemistry not much could be done, but that came later.

Soon after the close of the war Mr. McMillin found congenial employment in a small gas works of which he shortly became manager. This offered an opportunity for the study of chemistry in a laboratory, which he immediately created and in which he could often be found at work until two o'clock in the morning. It was also his introduction to a field of industrial activity in which he soon reached the first rank, for along with the scientific knowledge and technical skill which he acquired with wonderful rapidity, he developed a keen understanding of financial problems, especially those involving projects in industrial engineering.

He became, indeed, an engineer in the broadest and best sense of that word. His preparation for the many sided activities in which he was gradually absorbed demanded a degree of enthusiasm, industry, courage and capacity for work extraordinary, even for that period, though not so rare then as now. The generally recognized absence of these qualities in many of the present generation of young men is often explained and excused by the statement that it is a necessary aftermath of war and that the same condition existed for several years after the close of the Civil War. One who had much to do with young people during that period ventures to record a strong denial of that assertion.

To the great majority of those who served through those four years the Civil War was an invigorating and toning experience. The Emerson McMillin, aged twenty-one at the end of the war, was, in many respects, far more than four years in advance of the boy who entered the army at seventeen.

He had learned to hold himself under the most rigid discipline. A good many years later, when he was at the culmination of his career as a Captain of Industry and a successful financier, I was his guest for a few days at his home in the city of New York. Although he had then passed the meridian of life, as it is usually fixed in years, his capacity for work and for the rapid absorption and assimilation of information was undiminished. In the evening he would engage his guest in a discussion of some of the latest advances in physical science,

which might last two or three hours; then two or three more hours would be passed, most delightfully, in his large and rapidly growing gallery of paintings. By this time the small hours of the night would be at hand and the guest, who just then was throwing off all duties and responsibilities and running away from work as fast as he could, was quite ready for an "intermission" knowing that Mr. McMillin would still have a few hours at his desk before ending his day.

During fifty years of his life five and a half hours only, out of every twenty-four, were allotted to sleep and almost invariably he was in his office on Wall Street before any of his clerks, often anticipating the arrival of the janitor.

Though always reluctant to speak or write of himself or his work, in response to my earnest request for some details regarding his early life, he sent me about three years ago, a most interesting letter, from which I quote the following concerning his personal habits and tastes:

"For twenty-five years I devoted five hours per day to the study of some branch of the sciences that was useful to me. Later, when my work became largely financial I devoted that five hours per day to other studies, but systematically, Art (painting, chiefly), History of Music, French, Social and Political History, etc.; never less than one year, and in one instance, five years to one study. My sleeping hours were five and a half out of twenty-four, for fifty years."

Mr. McMillin's management of the small gas works soon attracted attention. My own first knowledge of and contact with him came about this time, when Dr. Edward Orton, then president of the Ohio State University, whose appraisal of young men was almost unerring, remarked to me, "There is a young man down at Ironton of whom we shall hear great things one of these days; his name is Emerson McMillin."

Though self taught (with the aid of a text-book) Dr. Orton had found him well informed regarding the geology of the region and sound in his geological reasoning.

He had mastered Civil Engineering sufficiently to enable him to locate and survey a line for a railway in Southern Ohio, and his report included an excellent discussion of the mineral resources of the territory to be served.

His activities in this direction very naturally created in him an interest in the manufacture of steel and iron and for several years he was engaged somewhat extensively in that industry in addition to that of the production of artificial gas,

which was, after all, first in his mind, and to which before long he gave himself exclusively.

Just forty years ago, in the year 1883, opportunity came to him in the form of a call to the city of Columbus as manager of the gas works. In the meantime his intensive study of chemistry, physics and other branches of science relating to the manufacture of gas had been fruitful in the invention of a method of purification which materially affected both quantity and quality of the product. For many years the people of Columbus had been paying an exorbitant price for an inferior quality of illuminating gas and at last relief was sought in a change in the management of the works.

Mr. McMillin was chosen as manager at the then unusually high salary of four thousand dollars a year. In a comparatively short time the president of the Gas Company declared that the salary of the manager was being paid out of the economies which he had introduced which, together with a greatly reduced cost of production due to the use of scientific methods, made it also possible to reduce the price to consumers.

He devoted five or six years to the development of the Columbus plant, all being done in harmony with one definite plan which may be said to furnish the key to his great success; namely, to supply the best possible product at the lowest possible cost to the consumer, on the principle that the interests of the producer and the consumer were one. In a few years he was not only the manager but also practically the owner of the Columbus gas works and there came visions of larger operations in engineering finance.

His next step was perhaps the most important in all his career, for because of its magnitude and success he became at once a national figure in the field of industrial management.

The city of St. Louis had been cursed for some years by the existence of four competing and continually warring gas companies, both consumers and stockholders being the victims of unscientific and irrational methods of doing business. In this situation Mr. McMillin saw an opportunity for bringing about a consolidation of interests which would greatly benefit all parties legitimately concerned. His success at Columbus was a sufficient guarantee to win for him the support of some bankers in New York City and after overcoming many difficulties, the four organizations were amalgamated into the Laclede Gas Company.

Of the many phases of this operation, there was one of sufficient interest to justify special mention at this time and in this place. The successful achievement of the result depended on certain agreements with the city government regarding franchise. It must be regretfully admitted that forty years ago the code of morals in legislative bodies, especially in municipalities, was of a distinctly lower plane than even at the present time. Among a certain class of office holders, receiving pay for votes in awarding contracts or granting franchises, was regarded as a perfectly natural proceeding and a practice the existence of which was generally known. Heavy demands of this nature were made upon Mr. McMillin, and one small group, believed to be sufficiently powerful to determine the result, notified him that nothing less than twenty-five thousand dollars would secure the legislation necessary to accomplish the end he had in view.

Not long after this ultimatum had been issued I happened to be in St. Louis for a day and accidentally met Mr. McMillin. The question had been settled, the victory was his and sitting together at luncheon he gave a most vivid and entertaining account of his battle with the spoilsmen.

"I have millions," he told them, "for development and improvement, but not one dollar or one cent for tribute." He made them understand that he would sacrifice all that had already gone into the enterprise rather than yield an inch. The yielding came from the other side and was complete, though probably accompanied by great astonishment at Mr. McMillin's attitude which was doubtless a novel one to the city officials. Evidently they concluded that a man who would not buy could not be bought and from that time the mutual relations of the municipality and the new company were established upon that basis.

The success of this, his first very large venture in the field of public utility reorganization was so great that he immediately gained the confidence of conservative and influential financiers and capital, practically unlimited in amount, was available for similar enterprises, a number of which he undertook and successfully completed.

Unquestionably his success was largely, and in the beginning mostly due to the "five hours every day" devoted, during a period of twenty-five years to the intensive study of the "sciences that were useful" to him. During these years he had

not only acquired knowledge, but his naturally keen intellectual faculties had been brought to a high state of discipline, ready to attack with vigor and usually with success, any new problem which might present itself.

Up to the year 1891 he had been generally serving others, organizing and executing projects of which, though inspired by him, he did not have complete control. In that year, however, he resigned from a very lucrative position to enter the business and financial world on his own account. Associated with him in this venture was Col. Henry B. Wilson of Ironton, (brother of the late Col. E. S. Wilson, editor of the "Ohio State Journal") with whom he established in Wall Street, New York City, the banking house of Emerson McMillin and Company.

This took him more completely into the field of finance and the promotion of public utilities, thus practically terminating the period during which he personally managed the enterprises which he controlled. But it cannot be without interest to the group of men for whom, primarily, this sketch has been prepared, to note that behind McMillin, the financier, was always McMillin, the engineer. The success of the firm of Emerson McMillin and Company was immediate and great, for in all of its undertakings it was guided by the engineer's instinct and the engineer's caution.

To the purchase and reorganization of gas producing plants there was soon added the acquisition of electric light and traction properties. The operations of the firm were co-extensive with the United States and at one time it controlled more than forty such corporations, including those of many of the principal cities. In 1901 these were combined into one giant corporation, the American Light and Traction Company, with a capital of over forty millions of dollars and Emerson McMillin as president.

Later in life he gradually disposed of a majority of these properties but at the time of his death he controlled seventeen of them, including a number of the largest and most important, and he continued to the end, to take an active and keen interest in the affairs of his house, presiding at a meeting of the executive committee only a few days before his death.

It would be interesting and instructive to consider in some detail a few of the more extensive operations in which he was engaged, but I confine myself to one or two of the most difficult and most important, illustrating those qualities which insured the success of his undertakings.

It was he who organized the company for the construction of the tunnel under the East River, connecting Long Island and New York City. At the beginning of this great enterprise and up to the day of the formal opening of the tunnel many able engineers pronounced it an impossible achievement. Great difficulties were encountered during the construction period; stockholders were discouraged and disheartened but the work was guided by one who had not known failure and whose efforts were again rewarded with success.

Mr. McMillin was one of the first to appreciate the tremendous potential value of the Welsbach non-combustible mantle for incandescent gas-lighting and he had a large financial as well as a scientific interest in its development and practical use in this country.

Because this process greatly reduced the quantity of gas consumed per candle power of illumination many gas producers were actively opposed to it, but McMillin had achieved distinction as a gas engineer upon the sound economic policy that by diminishing the cost and at the same time improving the quality of a commodity in general use a greatly increased demand for it would be created. Better light and cheaper light would mean more light and in spite of long and discouraging delays in the perfection of the process the soundness of his judgment was established on the pages of his ledger.

But in the meantime, along with the rapid development of his business enterprises there was an equally rapid and even more notable development, growth and evolution in the man himself. As Col. E. S. Wilson once said of him, "McMillin grew faster than his wealth."

The five hours of intensive study each day, devoted, during many years to the various branches of science which were contributory to the solution of engineering problems incident to his extensive undertakings, were subsequently spent upon Art, Music, History, Political and Social Science, Foreign Languages, etc., "always systematically," and their cultural effects were strikingly noticeable. There was nothing superficial about his knowledge and accomplishments, and it is, therefore, not so strange that the youthful charcoal burner, who studied the heavens while standing guard at a military post in time of war, became a devoted student of art and a collector with a discriminating sense of values rarely excelled.

It is common to divide "money-getters" into two classes: those who desire wealth as a means, and those who seek it for its own sake. I think Mr. McMillin belonged to neither of these groups. His pleasure, his real joy, was in doing the job, in beating down the obstacles that rose in his path, and on such men Fortune rarely fails to smile.

To one to whom wealth comes in this way the problem of making good use of it generally receives serious consideration and it often proves to be a most difficult one. Mr. McMillin's gifts of money for the relief of the unfortunate, for civic or educational projects, were numerous and large and in a great many instances individuals who profited by his generosity never knew the source of the help which came to them. In addition to giving money he gave much valuable time, being never too busy to give careful consideration to the claims of any cause which promised to be fruitful.

At an early period of his residence in New York city he came to be recognized not only as a master of finance but as a man whose interests were broad and liberal and he was soon a member of numerous organizations of a public character having for their object the public good.

He was greatly interested in World Problems, being a member of the "Committee of One Hundred" which had for its object the establishment of a "True International Court of Justice" and he was one of the principal organizers of the "World Court League." Shortly before his death he accepted the presidency of the Arbitration Society of America.

Throughout his whole life Mr. McMillin gave freely of his resources to the aid of suffering humanity, though because of his modesty and reluctance to speak of his own work, the full extent of his generosity will never be known. During a period of at least forty years he employed agents to investigate and report upon cases which appealed to him and his distribution of charity was made with the same careful discrimination that had guided him in business.

In our war with Spain, Mr. McMillin, past the age of actual military service, was represented by his son, Marion, who bore the name of one of the three McMillin brothers who gave their lives in the Civil War. He also gave generously of his wealth, especially in making provision for the wives and children of soldiers, purchasing a farm in West Chester County, New York, and founding a home for that purpose.

After the close of the war he converted this plant into a "Vacation Home for Factory Girls" which he maintained for many years entirely at his own expense.

At the beginning of the recent great war and before the United States had entered it, Mr. McMillin was a large contributor to the financial support of Italy, for which country he had formed an attachment during a visit of some length a dozen years earlier. This friendly interest received a graceful and generous recognition on the part of King Victor Emanuel. It is unnecessary to say that when his own country became one of the participants in the great conflict he was an earnest and efficient supporter of the government in all of its efforts to insure victory.

In actual military service the family was again represented by Captain Marion McMillin who served throughout the war.

Mr. McMillin was a member of many clubs and societies, forty or fifty in all, though he would hardly be called a "clubbable" man. Though fond of his friends and generous in hospitality there was not much room in his life for frivolous conversation or unimportant commonplace.

For his recreation he sought the open; he had an intense love for the forest, possibly a heritage of his boyhood, and he was a hunter of both big and little game.

His lifetime interest in astronomy led him to erect and equip an astronomical observatory for the Ohio State University, known as the Emerson McMillin Observatory, which, in the hands of its able Director, Professor Henry C. Lord, has been the means of making numerous important contributions to the science of astronomy. To this generous gift he added the endowment of a Fellowship in Astronomy, for a period of five years, and he made further gifts of money from time to time, for the purpose of enabling the Director of the Observatory to attend important conventions, also financing completely an astronomical expedition to the Hawaiian Islands, for the purpose of observing the effect, if any, upon the solar spectrum, of the transit of Halley's comet across the disk of the sun in 1910.

The University is indebted to him for other important gifts, including several thousand dollars for the purchase of books for the Law Library and also a sum of money which made possible the acquisition by the Geological Museum of the only complete skeleton of the *Megalonyx* in existence.

Mr. McMillin was one of the first to show an active interest in the development of aeronautics, contributing in money nearly forty thousand dollars for the investigation of aviation problems, and he also offered to pay the cost of training two hundred pilots.

Much other evidence might be given of his readiness to contribute to "the increase and diffusion of knowledge among men," as well as innumerable instances of his generous aid to the distressed and unfortunate. Never forgetting the limitations of his own boyhood he had more than a mere responsive interest in the ambitions of young people to secure the benefits of an education and, in a large and systematic way he undertook to assist them, though the source of the aid thus rendered was seldom known by the beneficiaries.

Out of a considerable number of experiments in this field of philanthropic endeavor it is not strange that there were some failures. Among those who were directly helped by gifts of money, results were so unsatisfactory as to produce a definite and decided opinion that to attempt to create a career for a young person by an outright gift of money was illogical and doomed to failure.

This lesson was undoubtedly a bitter one but as Mr. McMillin's experience is worthy of the careful consideration of all who are concerned with the education of young people I think I am justified in giving a brief resume of it, as it came to me in his own words a few years ago:

"During a period of about ten years, beginning with the year 1900, I helped twenty-five persons to obtain the kind of an education they most desired. They were practically supported by me for one, two, or three years; were mostly girls and the greatest number of them were educated for teachers; many for music. . . . During this time there were about twenty-five boys with our companies who evinced an interest in the sciences. They were given opportunities to develop, to use the scientific libraries and laboratories.

"RESULT: All those helped financially were failures. All those given opportunity to help themselves were successes, and are now drawing salaries of from \$5,000 to \$25,000 per annum."

This statement certainly presents a gloomy outlook for the advocates of free tuition and heavily endowed scholarships, and it may be urged, perhaps with justice, that Mr. McMillin has made use of a false unit in evaluating success.

But it was probably true that every one of those educated at his expense had definitely in view the acquisition of knowl-

edge and skill for the purpose of earning money. It is also true that "salary" is a much better measure of success than income from business, investments or inheritance, because it is an evaluation by others, whose interest is to minimize rather than exaggerate.

Mr. McMillin's connection with the Ohio Academy of Science began twenty-five years ago.

At the meeting in December, 1898 "Professor Lazenby reported that Emerson McMillin had given \$250.00 to the trustees of the Academy to be expended in such ways as they thought best suited to promote scientific research, and had said that such a sum might be given annually, provided the use made of the money were satisfactory and it proved to be convenient for the donor to spare it." In order to provide for the administration of such a fund Professor Lazenby offered an amendment to the Constitution of the Academy, establishing a Board of Trustees, consisting of three members to be chosen as at present, but as this could not be acted upon before the next annual meeting the Academy voted to accept the gift and a temporary board was chosen to administer the fund for a single year.

This board consisted of F. M. Webster, W. R. Lazenby and E. L. Moseley. The first Board of Trustees elected under the amended constitution consisted of F. M. Webster, H. C. Beardsley and J. H. Schaffner.

In a communication from Mr. McMillin a year or two later he expressed a preference for the use of the fund as a direct subsidy or gift "to entirely competent and experienced investigators, not otherwise provided with financial support," rather than for printing or publication, adding, however, that he did not wish to dictate in any way as to the use of the gift.

For a number of years annual statements of the expenditure of the fund were submitted to him, and in some instances his opinion was asked as to the wisdom of making grants for certain kinds of research. In all cases his response was such as to indicate a desire not to interfere with or influence the policy of the trustees.

It is interesting to note, however, that he did, in one of his letters express himself as rather strongly opposed to allowing his annual gift to accumulate in order to form a permanent fund. Though declaring that the Academy could do as it liked, he added, "On general principles I am opposed to permanent

funds. . . The future will be able to take care of itself. It is much easier now than it was a generation ago to secure funds for this work, and it will be much easier a generation hence than it is now." During the bond-buying period of the late war I wrote him of the investment of \$500.00 of the fund in a Liberty bond which met with his cordial approval.

In nearly every one of his letters to the Trustees or the Secretary of the Academy, he speaks of his strong desire to attend its meetings, but as far as I know, he was never present at one of them. There were, however, frequent expressions of great interest in it and its work. At my request a few years ago, our associate, Dr. Herbert Osborn, prepared a list of published contributions to science which had been made possible in a large measure through his annual gift. This was sent to him and upon it he remarked:

"The research fund seems to have been pretty lively and doing work out of proportion to its size. The workers rather than the cash, probably are entitled to the credit."

At another time he wrote:

"The Academy needs to live centuries. I cannot, at most, live but a few years, much as I would like to be permanently established at Darlington."

The last meeting of the Academy happened to occur on the days just preceding the seventy-eighth anniversary of Mr. McMillin's birth and the Committee on Resolutions reported a congratulatory message which was telegraphed to him by our Secretary, as follows:

"The Ohio Academy of Science in its thirty-second annual meeting in Columbus desires to extend to you on the occasion of your seventy-eighth birthday its heartiest congratulations, and wishes to express to you its appreciation of your continued support of scientific research through the Academy."

In reply to this we have his last message to us, as his death occurred a few weeks later. It is addressed to Edward L. Rice, Secretary, and reads as follows:

DARLINGTON, MAHWAH, N. J., April 18, 1922.

"DEAR MR. SECRETARY:

"Your telegram conveying the birthday greetings of the Ohio Academy of Science was received on time, and was the best tonic I have received during the last fifteen months of almost constant illness.

"I do thank you and the Academy most sincerely,

"EMERSON McMILLIN."