

MEMOIR
OF
JOHN CALL DALTON.

1825-1889.

BY
S. WEIR MITCHELL.

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BIOGRAPHICAL MEMOIR OF JOHN CALL DALTON.

GENTLEMEN: Our late member, JOHN CALL DALTON, was for years a peculiar and influential personage in the profession of Medicine in America. There had been before his day men who were noted for single papers on physiological subjects or who had spent brief periods on physiological investigation. Some of the work thus done was valuable and original, but always it was that of physicians who stepped aside from their other pursuits to follow experimental study for a brief season, and who went back again to the ordinary routine of their profession. It would, indeed, be too easy to enumerate their essays.

The man to whose memory I devote these pages was the first among us to give a life to the single pursuit of experimental physiology and its related sciences. I shall presently speak of what he was and did, but it is humanly interesting to note here that out of this singleness of pursuit and out of the fact that he was the first to content himself with physiology as a laboratory life-work there came to him a reputation above and beyond that which his discoveries justified, but which was fairly the reward of an unselfish devotion, which followed with simplicity of purpose and indifference to material gains one single path untroubled by greed and undisturbed by mean ambitions.

He was our first professional physiologist. Of no other science save physiology could it be said that it had then no practical students in America. Before his day there had been esteemed professors who, like Robley, Dunglison, and Samuel Jackson, possessed singular powers of acquisition, critical ability, and eloquent capacity to express the thoughts of others. A physiological lecture was in that day a more or less well stated resumé of the best foreign books, without experiments or striking illustrations. It was like hearing about a foreign land into which we were forbidden to enter.

I well recall the really admirable lectures of my own preceptor, Dunglison, who was brought to America by Thomas Jefferson to lecture at the University of Virginia, and thence came north to the school at which I learned as much of my profession as men learn

on college benches. I am amused to remember how much of the physiology I learned seemed to have but two dimensions. The imagination was freely called upon to aid us in our conception of active functions. We saw, for example, as illustrative of the circulation of the blood, certain diagrams, and also a dead bullock's heart layed open to exhibit the cavities and the valves. Years afterwards I first saw in an etherized animal the living, moving heart. The swift certainty of the successive motions of this bounding thing (itself like an individual existence) filled me at once with a fresh conception of the delicacy and wonder of the vital mechanism amidst which I had been moving, so to speak, with but the slightest realization of its marvel and mystery. Now, at last,

“ I saw with heart serene
The very pulse of the machine.”

The vehement energy of movement—certain, accurate almost as a clock—filled me then for a time, as it did the great Harvey, with a sense that surely it was to be comprehended but by God alone. I seemed to have become before this coarsely familiar with the human body—familiar, perhaps, to disrespect. A single object-lesson on the living heart, a thing unseen by me before or only heard or felt, left me with a never lost and most useful respect for the mystery of it all, and a feeling of need for care which could not be too thoughtful.

Since then, as a teacher, I have seen the good influence of such object-lessons on other men who were learning the sadly uncertain Art of Medicine in youthful disbelief of uncertainties.

In my student days, as I have said, no teacher habitually brought us face to face with these phenomena of vital physics, and when once they were shown their influence on intelligence was lasting. Nature is, alas, only too shy; but we may at least get nearer to what she reveals than a mere description. For the neglect of the classical scholar-professor to show, as far as might be, the animal mechanisms in action there was reasonable excuse. No man is justified in showing to a class mere repetitions of experiments at the cost of pain to animals, but about the time Dalton began to teach ether enabled us to do without pain what before would have been cruel. He was prompt to see that a new era had opened for the teacher of physiology.

Dalton began almost at once to illustrate with living animals the processes of life as he taught them in lectures. He was the first to

do this in America. It was a vastly useful lesson to all who followed him, for lectures should be largely commentaries on experiments; almost all else can be had in books. But books do not *show* arterial pressures; they only *state* them. They but *describe* the heart, whose perplexity and mystery of motion must be *seen* to be appreciated. I confess to the belief that in medical teaching most didactic lectures might be dispensed with and books and recitations take their place. But in Physiology, Anatomy, Therapeutics, and Chemistry the lecture with its profusion of illustrative experiments should remain.

As his practical skill in experiment led Dalton to use it in adorning his teaching, it tempted him very early into the field of research, and here for many years my friend and I were quite alone—the pioneers among us of work now become large and productive, but then looked upon with doubt and even suspicion, as something with which the practical doctor had better have no concern. Dalton, unembarrassed by daily practice, went his way untroubled and was, I believe, the first American Physiologist who declined to practice medicine. Older men not only disapproved of this divorce, but also considered the active pursuit of physiological knowledge in the laboratory as inimical at least to worldly success in the practice of medicine. Prof. Samuel Jackson once said to me, "You will lose a patient for every experiment you make in the laboratory." But times have changed, and he was altogether wrong.

John Call Dalton was born in Chelmsford, Mass., February 2, 1825, of a line of able physicians, himself destined to give the name a permanent place in American Science. Doubly indebted to Harvard for degrees in arts and medicine, he found in Paris a teacher under whom he turned with eager zest to experimental physiology. I remember having heard Dalton, when praising his great master, tell how once he himself had said, "I think it must be so;" to which Claude Bernard replied, "Think! Why think, when you can experiment?" Bernard strongly influenced the men who sought his courses, and I for one, like Dalton, must gladly acknowledge the educative powers of this sturdy genius.

On his return home Dalton calmly put aside the ambitious calls of mere practical life in my profession; nor, indeed, did he seem to me fitted to excel in these. In 1831 his essay on the "Corpus Luteum" received a prize from the American Medical Association; nevertheless, in 1860 he advised me against contending for the same

prize. I do not now recall why. I sent in as an essay my well-known Smithsonian work on "Serpent Venoms," and was not the winner of the prize.

Soon came the appointment to teach Physiology at Buffalo, which he left for the same work in 1854 at the University of Vermont. From this Chair to the Long Island Hospital School we trace him in 1859, and this year also he finished his Text Book of Physiology, which in 1882 had reached its seventh edition—a clear, concise treatise, in that day without rival, for it was written by one who had seen experimentally almost every known fact of the science he taught. Then came a long break in the scientific record.

The War made a claim upon Dalton to which he replied without hesitation. Amidst the numerous demands made by that great struggle none were so hard to fill as those for the best surgical advice. The history of what my profession did in and for the great cause has yet to be fitly told. I think Dalton little liked the life in the field and hospital, and this is shown by the fact that with all his great powers as an intellectual observer his experience of thousands of cases evolved nothing of value. He had not the type of mind needed for clinical study. He was at this time Professor of Physiology and Microscopical Anatomy in the College of Physicians and Surgeons in New York, and urged me to assume his lectures while he was absent; but this my own hospital duties rendered impossible.

Soon after the War he became full Professor of Physiology in the great New York School and declined all temptations to go elsewhere—lecturing, working, observing, experimenting, and only tempted forth from the laboratory to take the place of Vice-President of the New York Academy of Medicine from 1874 to 1877.

During many years the public knew little of Dalton, except when he appeared before legislative committees or in print in defense of Science against Mr. Berg and such others as wished to carry legislative interference even beyond the follies of the British law, and to deny to us all use of animals in the laboratory. In this contest Dalton was always successful. His intense, fiery spirit, his profound convictions and vast knowledge, routed all opponents. His singular ability in the management of his case was not less remarkable than his skill at logical defense or his wealth of defensive illustration. For this fierce and able battle we owe him much, and there will be little need to re-argue the matter whilst his presenta-

tion of it remains in his delightful little volume on the "Experimental Method in Medicine" and his "History of the Doctrines of the Circulation." In the former book is an essay on Buffon's "Theory of Organic Molecules" and Buffon's "Theory of the Inclusion of Germs." I know few essays on dead and very dry science made so interesting as this by the mere literary qualities of the writer—a matter too much neglected by men of science; for assuredly it is true that even an arid description of a shell or a beetle may gain interest from the charm of a style precisely fitted to the task. The man is not always to be found between the pages of his book, but in these essays we get some glimpses of a man keen and logical, faintly cynical in no ill-tempered fashion, and here and there unexpectedly humorous, as he was in social life.

Of a quantity of papers on the cerebellum, placenta, digestion, hydatids, toenia, etc., I have not time to speak in full. One of his best pieces of physiological work was a brilliant experimental essay on the "Sugar-making Functions of the Liver." After Bernard's revolutionary discovery of this new liver function it was denied by Pavy, who really seemed to have demonstrated the great Frenchman's error. Dalton's paper brushed away the whole critical fabric of Bernard's opponents, and since then physiological opinion has remained settled upon this question.

Of late years the Presidency of the College of Physicians and Surgeons, keen contests with the vivisectionists, and alas, too, increasing ill health and its sad claims for rest combined to lessen and at last to stop original work. He complained that societies, affairs, and public trusts took up his time, and this was true; for when the public find a man like Dalton, honorable and energetically efficient, it is prompt to weight him heavily, and this despite the belief that the man of science is inapt for business; whereas he is competent as few men are when he chooses to drop his higher purposes and exercise his mind with the mere routine of business life or with the administration of affairs involving method and common sense.

In 1883 he thought best to resign the Chair of Physiology, but during the six remaining years of his life was as active as increasing disease permitted in his post of President of the College of Physicians and Surgeons. His later years were occupied with his great morphological work on the "Topography of the Brain." For this he personally prepared all the specimens, and with sedulous care

followed the photographs made in his presence through the processes which at last ended in their production in his book. Of these noble quartos of superb illustration and careful description one may frankly speak in terms of warm praise. I know of no other "Anatomy of the Brain" so satisfactory for reference. It is pure gross anatomy of surface or sections. No word of tracks or fibres or of functions; it is all pure macroscopy.

John Dalton was elected a member of the Academy in 1864, and for a long time was seen at our meetings; but very far back he began to feel the lack of energy due to the onset of disease, and ceased to be with us often. Historically, he represents in our story the first academic recognition of Physiology. Few of us, perhaps, recall his quaint, earnest, attentive face, accentuated as to feature, bearded to the loss of facial expression; the forward set brow, the keen eyes, at times vividly humorous in expression; something about his face very honest, very intent, very strong—a face which surprised one by its sudden illuminations.

He had, says a pupil, the "teaching instinct"—thinking of class, of theme, of the questioning faces before him, but never of himself or how he would appear. No side issue disturbed him, and he had the skill to make the difficult appear simple, and evidently rejoiced in his power to make things plain. Now and then some side light gave a glimpse of his encyclopædic knowledge, but he made no excursions for mere amusement's sake; all was clear, logical, and the manner of it earnest, yet lively. At times his illustrations were the inspirations of the moment, as when to show the relations of the corona radiata in the brain to the basal ganglia he began to arrange hastily scraps of felt on the radiating fibres of a broom. He had the rare gift of making those who listened desire to become investigators. He made men think. Possibly lecture interests absorbed too much of him, but he really created a method of teaching his branch such as was before unknown among us.

Dalton was a man of whom I saw much at times. He once came to me to offer a Chair in the College of Physicians and Surgeons, and once I went to him with the gift of the Chair of Physiology in the University of Pennsylvania. He frequently consulted me as to his own work, and he took in mine the warmest and most unselfish interest, and was more pleased than I when something new and valuable was uncovered.

In social life he was inclined to be quiet; but if disturbed as to

his political or economic views (which he held with tenacity) he was an interested, swift and ready talker, defending himself with skill and humor, and at times with excess of vehemence.

It is pleasant to show another side of this vigorous personality. As a man he lived the simplest of lives—a bachelor, in a tiny suite of rooms, eating quietly at his club, unstirred by the venal ambitions of the roaring world of greedy trade around him in New York. Here among the greater books of the past, with a wide choice of subjects, you might find him with Cicero, the Arabian Nights, or Galen or Sydenham. This quiet scholar and profound man of science was tranquil and self-possessed under fire in battle, as I have been told by one who had seen him in the field. He was a bold horseman, and in his younger days a venturesome rider across country.

A long and painful illness at last made impossible the labor which he best loved, and one by one he fell out of the public and social relations which made life valuable to others and pleasant to both them and himself.

A year before he died, an attack of uræmic convulsions occurred and left him for a time with aphasia. Says a friend* “It was almost amusing to observe the characteristic curiosity with which he watched the phenomena of his disease, studying it apparently with as much interest as if he were observing it in another person.”

Despite the nature of his malady, he carried his mental clearness and active intellectual interests near to the time of death, as it were, undisturbed by the crumbling ruin of his bodily frame. Well aware of the approach of death, he met his fate with quiet courage, and so came to the end of a well-filled life, in which he brought to the service of his country his science, his profession, persistent energy, great intelligence, a fine sense of honor, and all the minor characteristics of a true and manly gentleman.

* W. H. Draper, M. D.