

REMINISCENCES OF DR. WOLLASTON.

“His saltem accumulẽm donis et fungar inani—Munere.”

[READ DEC. 20, 1849.]

It has often been a matter of surprise and regret, that although more than twenty years have now passed since the death of Dr. William Wollaston, no life of that eminent person has appeared. The compiler of the following sketch feels how unequal he is to such an undertaking, and would gladly hear that it was committed to some one who could do it justice.

Meanwhile he has a mournful satisfaction in recalling to himself many circumstances and characteristic incidents respecting a dear friend with whom he had for some years continued personal intercourse, and for many more, frequent correspondence. These memorials were not intended for the public eye, but they may not be uninteresting to some, who, like himself, well knew and valued the subject of them.

William Hyde Wollaston, M.D., was the third son of the Rev. Francis Wollaston, F.R.S., Rector of Chislehurst, in Kent; he seems to have been nursed in the lap of science, for his father's sister was the wife of the celebrated Dr. Heberden; and the distinguished exertions of the father in scientific, more especially astronomical pursuits, may early have given a taste and direction to the minds of his sons. The eldest of them took the degree of senior wrangler at Cambridge, was afterwards Jacksonian Professor in that University, and Archdeacon of Essex; the subject of this memoir after having been educated at the Charter House, was admitted at Caius College, from which he proceeded M.D., in 1793, and of which he was for some years a Fellow.

Upon quitting Alma Mater he began his career at Huntingdon, but soon removed to Bury St. Edmund's, a town in which an uncle of his, Dr. Charlton Wollaston, had been well known as an eminent Physician; and where some connections of the same name were still residing. And here it was that the writer, witnessing Dr. Wollaston's kind manner and skill, when attending the sick bed of his parent, was first made known to him, and then

commenced that acquaintance which soon ripened into friendship; an acquaintance from which he derived lasting pleasure, and to which he owes so much, for very truly could he say of Dr. Wollaston. "nihil est quod discere velis, quod ille docere non posset: mihi certe quoties aliquid abditum quæro ille Thesaurus est"—heu erat. Having a similarity of tastes in many things we were very frequently together, either riding, walking, or talking on them; and *few* days passed without our meeting. Soon after his death a friend of his wrote to me to enquire what were Dr. Wollaston's chief pursuits and habits while residing in Bury, and in many points I was able to respond; for *there* were early seen indications of his turn and power of mind: and *there* perhaps the first suggestions, from subjects around him, which gave rise to future papers; the first *seeds of thought* which afterwards were developed and matured. There was always the same quickness and keenness of observation; he was fond of *Botany*, and soon knew the habitat of every rarer plant of which in this neighbourhood there are several. Nothing escaped his eye. When we were crossing a heath at a smart trot, I remember his suddenly pulling up, and exclaiming "there's the *Linum radiola*," a plant well known, but so *minute* that his companion, when alighting from his horse, and looking close to the ground, could scarcely at first descry it.

And it was the same throughout; every notable spring, or mineral, or tree, in the neighbourhood was known; experiments made on them in his little study with a few small phials, tests, and watchglasses; the time of leafing and flowering of plants, the notes and scale of birds, the habits of animals, the motion and velocity of the clouds and winds; there were to him "sermons in stones and *food* in everything." And when the day was gone, the stars were looked at with an artificial horizon of quicksilver in a *saucer*. The listening to articulate sounds and harmonics might even then give rise to the long subsequent and beautiful paper on "*Sounds inaudible by certain ears**" The observing of objects apparently raised from their real position, to that on "*Atmospheric refraction*†," the noting and measuring the increase of them to that on "*Fairy rings*‡," and his answer

* Phil. Trans. for 1820.

† Ditto, 1800.

‡ Ditto, 1807.

to the enquiry of a friend at Bury as to the nature and treatment of gout, to that on "*Cystic Oxide and Calculi*.*" The defective vision of a college friend might first lead to his paper on "*Squinting*," and a partial and temporary failing in his own, to that on "*Semi-decussation of the Optic Nerves*†."

Great was the variety of his pursuits, and one instance of it as well as of his perseverance to satisfy himself on any point he wished to know, may be given. He had been speaking about some mathematical matters, which (as I had recently taken my degree) might have been supposed less in his way than in mine, and at last, on the *Ninth section of Newton*—the motion of the Apsides was in those days considered a rather hard subject to propose in the schools. Upon my expressing my surprise at *his* being acquainted with it (as he had graduated in *medicine*); "to tell you the truth," said he "a man of our college was going to keep an act upon it; I suspected that he did not know much about it, so I determined to ascertain the point, and read up the question."

To *such* perseverance the avenues to any knowledge that might be desired were easily opened, and his knowledge was very general and ready to be communicated; it was the instructed scribe "bringing forth of his treasure things new and old." Indeed it was scarcely possible to be in Dr. Wollaston's company half an hour without learning something; without hearing some new fact, or having some old one put in a new light, almost incidentally, without effort or design. There was a kindness in the manner of communicating it; but if any great error was asserted, with a certain look, or a single question, he would convince the assertor that he was wrong. His presence was courted by all; even in female society, it was remarked, "we are always glad to have William Wollaston to join our circle, for he always suggests something or other about our work, or what happens to be before us, which we were not aware of before;" and amongst the young, those at least who had any mind, or any desire to learn, he entered into all their views and cheerfulness, the "playmate ere the teacher of their mind," or rather, the teacher, while he seemed to be

* Phil. Trans. 1810.

† Ditto, 1824.

their playmate*. The author of these Reminiscences has great pleasure in confirming his own views of Dr. Wollaston's character and pursuits by the following graphic letter from the pen of Sir Henry Bunbury:—

Barton, May 5th, 1849.

DEAR HASTED,—I am sorry to have to say that I find but little in Wollaston's letters to me which could be of service to you in extending your "Reminiscences," I send you, however, the copy of one of them relating to his "ticklish glass proof."

Whenever he came to Barton, or to Mildenhall, he was sure to have some new object of inquiry in his mind, or some new discovery to communicate. One year he would pretend to be examining a book in a distant corner, when there was a large party in the library; then would he sound an extremely acute note on his little pipe, and glance round to observe who caught the sound, and who were unconscious of it. At another time he would enter the room, blowing before him a tissue woven by spiders. One year he set me to drawing the human face in all directions, and invited arguments on his theory, as to the principle on which one may account for the eyes of a portrait following the spectator through his changes of position†. Wollaston was always inquisitive as to the observations made by persons who had happened to see trees struck by lightning. His own conviction appeared to be that the shattering of the bark and wood was occasioned by the sudden conversion of the sap and moisture into explosive gas. Likewise was he curious in his inquiries as to what had been observed when meteoric stones had fallen, or, particularly, whether any one had seen the moving body, and could say whether it was falling obliquely or perpendicularly. Wollaston was very fond of playing at billiards; but his principal amusement and interest seemed to lie in watching the effect of one ball upon another, and the various effects produced by striking with the cue above or below, or on one side of the centre of the ball. Wollaston was likewise fond of chess, and he played the game well. But if he met with an antagonist who was rather superior to him (as he did in my son's tutor, Mr. Matthews), then it was pleasing to see how Wollaston would buckle himself to his work, and sit up half the night contending for victory with all the ardour of a young man. He frequently desired me to send him specimens of rare plants, particularly some which are found about Mildenhall; and I remember his telling me that he had made it a rule, when he first took seriously to the study of botany, never to pass a flower, or any particular plant, without repeating to himself its trivial and its botanical name. And thus, he said, he kept his memory in exercise.

How well do I remember that singularly piercing eye, with which Wollaston looked into one's mind whilst he waited for an answer to an inquiry on any subject in which he felt an interest; and the brief expressive "*good*," with which he greeted the explanation if it was satisfactory to him.

* There are many instances of a similarity of mind and habits in Sir David

Brewster's Life of Sir Isaac Newton.
† Phil. Trans. for 1824.

Much do I lament now that I made no notes at the time, chiefly from about 1820 to '26, when I had so many opportunities of enjoying Wollaston's society; and now my memory fails me sadly. I wish very much it were in my power to contribute more and better materials; but such as they are, I place them in your hands.

Your's, dear Hasted,

Very truly,

H. E. BUNBURY.

To his kindness and manner in a sick room, no less than to his skill and judgment, there yet are those who could bear witness, and also to a degree of feeling for which some might not have given him credit, mistaking an apparent reserve for indifference—not knowing the extreme sensitiveness of his temperament, or that, under a coldness of manner, there lay hid a great warmth of heart.

Soon after he came to Bury he was called in to attend a relative of the narrator in what was thought a serious case, and asked immediately to give his opinion on it; he replied "You must consider I am a young man, I see nothing to be alarmed at, but you cannot expect me to speak at once decidedly," and he burst into tears. He was right in the opinion which he afterwards gave, as well as in his treatment of the case; but the circumstance shewed even in early days what he suffered when having a patient seriously ill under his care. His acute sympathy with suffering led afterwards to his giving up the medical profession.

As a *physician*, he generally and deservedly stood high, and might of course by degrees have commanded whatever practice he wished for, or the neighbourhood could supply. But his friends felt that he was calculated for a higher meridian—that *London* was the proper place for *him*; and thither, more in compliance with their urgency than from his own wish, in 1797 he removed, taking a house, at first, in Cecil Street, in the Strand. In that confined situation, however, he quickly observed that "even on the Thames a mirage was not a very rare occurrence," for that when the air was moist, so that evaporation did not counteract the effect of heat, he had seen, on different days, a refraction of 2'. 3'. 4'. nay 8' over the width of the river; though, as the line of sight must be nearly on a level with the water, and the number of observers not great, it was apt to be overlooked."

For the observing or hearing of anything remarkable he

was now at the fountain head. "The generality of the human race seemed of a superior order," among whom he went on for a time with his profession; but trifling cases, or imaginary ills, he was not inclined to attend to, serious ones gave him pain, and in the year 1800 he gave up practising as a physician*. He had before occasionally given me reason to think that the practice of physic "was not calculated to make him happy," and his words on relinquishing it I well remember—"Upon the common calculation my life may last so many years: would you for any compensation submit to be flogged every day during that period? then do forgive me if I decline that mental flagellation termed anxiety, compared with which the loss of thousands is a flea-bite."

Released thus from professional ties he was more at leisure for science; and a few months after we went together, with another friend, to the Lakes, the mountains, mines, and scenery of which furnished abundant food for thought. Objects raised by mirage were traced even along a dusty heated road, and remarkably "Lancaster Castle," when seen across Ulverstone Sands. To the wonderful accounts of the man "at the Isle of France," who from this (supposed) cause could see objects not in sight, Dr. Wollaston did not give full credit.

Geology, as a study, was at that time in its infancy, but with the forms, fashions, and contents of the hills he seemed already well acquainted. We could only take the *outline* of the districts, for neither of us could draw well, and we lamented our not being able to do so. The necessity led to one of his nice inventions. Calling on him a few months afterwards in town, I found him with a minute truncated and half-silvered prism fastened with sealing wax to a piece of wire. "Look," said he, "here is the very thing we wanted at the Lakes;" and very soon came forth that elegant and very useful little instrument, the "camera lucida."

* His friend Tenant had done the same "in consequence of the acute and painful emotions he had constantly experienced from those sights of hopeless misery which he had so often occasion to witness during his attendance at the Hospitals. He then travelled, attended much to agriculture, was elected Professor of

Chemistry at Cambridge, and died at Calais, in Nov. 1814, in consequence of a fall by a draw-bridge which had not been properly secured." It was said of some lectures which he gave at his chambers, in the Temple, on chemistry, geology, and mineralogy, "L'ignorant l'entendit, le savant l'admira."

A similar accident produced another most serviceable instrument in chrystalography, the reflective goniometer*, and, in latter days, another still, viz. the synoptic scale, for chemical equivalents and monetary calculations†.

Electricity was of course a frequent subject of his investigation, and that modification of it, galvanism and the voltaic pile, had been just announced. His first notice of it, in a letter to me, was, "I cannot write without a few words upon the most curious discovery (as it appears to me), unless we except cowpox, which has been made in our time (describing the voltaic pile): Nicholson and Carlisle have already made the apparatus, and in one week added some very important facts on the decomposition of water by it. The Royal Society hounds are in full cry after it." He had a minute tube in his *pocket* which with a wire connecting thro' a few drops of muriatic acid the zinc and silver, shewed the whole principle, and first set Dr. Currie, whom he saw on his way back thro' Liverpool, if not Dr. Henry, also, at Manchester, upon the right scent.

He soon made chemical matters, more particularly platinum‡, his study. About the same time Tenant and Wollaston were both of them engaged in the analysis of crude platina, which was suspected to contain some new metallic elementary bodies: and while the former discovered Iridium and Osmium, the latter detected Palladium and Rhodium. His discoveries respecting it are well known, and in order to have more quiet, and more room for his experiments, he removed, in 1801, to Buckingham Street, Fitz-roy Square, where, in a laboratory at the back of his house, which few were aware of, and hardly any one, even of his friends, ever entered, his works, by his old servant and himself alone, continued. He found leisure, however, generally, for some summer trip. In 1804 he was about to visit Professor Brinkley, in Ireland, but finding that his old fellow collegian was on this side of the water, he went, after seeing him, to Scotland, and owing to foul winds was *eleven* days in sailing from London to Leith. He was pleased at seeing in a glass-house (what, I have heard, so much struck

* Phil. Tran. 1809.

† Ditto, 1814.

‡ Ditto, 1803, 1804, 1805, and 1809.

Paley), viz. the "flashing," of crown-glass merely by centrifugal force*. In 1810 he went to Jersey and Guernsey: into Yorkshire with an intimate and valued friend in 1811; with the same friend to Paris at the termination of the war; and in 1817 to the Netherlands and Geneva. It was at Geneva that he met with a curious corroboration of his paper on "certain sounds inaudible by certain ears." Wishing to have a set of small metallic pan-pipes, in order to measure the different powers of hearing in different persons, he applied to an ingenious mechanic (a watch-maker) whom he had known in London, and said he wanted one tube about the pitch of a bat's scream: "A bat's, sir," said the man, "a bat utters no sound." *He* had not the power of hearing it. I happened afterwards to communicate to him two other similar instances: one of a friend who could not hear the notes of a nightingale, and another of one who could not hear the sound of a small hand-bell when he rang it close to his ear;—"he could hear the thumps but could not distinguish any vibration."

From being very much with his friend Mr. Edward Howard, whose paper "On experiments, &c., on Stony and Metalline Substances, &c., said to have fallen on the Earth," was read before the Royal Society in Feb., 1802, Dr. Wollaston's thoughts were a good deal turned at the time to the subject†:

* "Flashing,"—the phenomenon of flashing is described by Dr. Wollaston in the following letter.

"Burlington Street, Fitzroy Square,
"Tuesday, 11th Jan.

"My dear Sir Henry,—Herewith I send two copies of the substitute half face, in hopes that you will convey one of them to H. Hasted, when quite convenient.

"I send also what I hope will prove to be a very good specimen of the ticklish glass proof.

"In order to shew how it bears any external violence, I would hold it by the broken end to strike the round end laterally, with any degree of force, against solid wood without fear of breaking it. To shew its weakness internally, you may either take one of the small pieces of flint (which if I remember right weigh about half a grain), and drop down the centre of the tube to the bottom, when it may perhaps break to pieces instantaneously.

Perhaps it may take some minutes, or possibly (but very impossibly) some hours. I am inclined to think the bristle a better instrument to be used for the purpose of tickling the interior, by twirling the piece of flint stuck to the bottom; because it is not easy to let the fragment fall truly in the centre of the tube, so as fairly to strike the bottom.

"I prefer sending these to you in town, as I fear, from the shortness of my stay in Suffolk, that I have little chance of getting over to Barton.

"Ever faithfully your's,

"W. H. WOLLASTON."

† The fall of the meteoric stones from the heavens is now so thoroughly established, that every doubt as to their reality has long since vanished, and in an able article on "Humbold's Kosmos," in the *Ed. Rev.* for January, 1848, there is not only a numerous list mentioned, but the traces also of their having been ex-

and he wrote to me to make enquiries about a house near Bury, which was burnt and supposed to have been set on fire by a meteor. A very considerable meteor was seen by many persons on the night specified, but there was no reason to suppose that it caused the fire, nor could any trace whatever be found of any stone having fallen. He was inclined to believe that very few meteors appeared without some substances falling, nor generally without some explosion, and this connection of the "Bætilia," with some luminous body had often been thought of before; but there is a curious and almost incidental instance of it mentioned by Pliny, who speaking of the famous stone which fell at Ægos Potamos adds "*comete quoque illis noctibus flagrante.*" (*Hist. Nat.* ii. 58; compare Photius *Biblioth.* p. 348. *Bekker's edn.*)

posed to violent heat, the reason of their explosion, and their planetary nature apparently accounted for. It is interesting indeed to trace in several of his letters the first suggestions and reasonings of a mind like Dr. Wollaston's upon subjects presented to him; thus *e. g.* upon the subject in question he talks of "not being a sceptic to demur about facts which cannot be understood, and if of these they can be shewn to move as obliquely as meteors, assuredly they are not of this world." When speaking of the island of Portland, and tracing the same (chemically) strata all the way to Bath—"Our whole Island is but a bare point in a Geological light, and this small portion of it a particle of the second order: but what is our whole world." When speaking of Newton's colours of thin plates—"Young (*Phænomena*) finds that these as well as many other facts, yet unexplained, become very intelligible upon the old hypothesis of ethereal vibrations, and I am inclined to think he will nearly prove that to be the true doctrine." And of M. Malus's discovery as one evincing more accuracy and discrimination of observation than we usually meet with, and most likely to produce the greatest results as to the nature of light. And upon hearing of Piazzi's discovery of the first of the Asteroides—"What can be the foundation of the law, the broken chain of which led him to look for it; and what end can such atoms as the Triad of Ceres, Pallas, and Juno answer dancing in the interval between Mars and Jupiter."

What would he have said could he have lived to witness the development of all these matters, the wonderful discoveries of magnetism and currents of electricity, the rotatory motion of which himself was the first to suggest; the now known Polarization of light; the system and conclusions of geology; the wonderful additions of planets to our system—of more than five within the last five years; and how would he have exulted in what has been termed the "triumph of science," in the foretelling and finding out, in consequence of repeated observations on the perturbations of another planet (Saturn) and by mathematical calculations, *Neptune!*

The advancements of science within the last twenty years have been immense, they seem to have been going on at a railroad pace, and it is difficult to keep up with them; in the words of one of the most distinguished Philosophers of the present day—"A man finds that the further he enquires and the wider his sphere of observation extends, they continually open upon him in increasing abundance; and that as the study of one department prepares him to understand and appreciate another, refinement follows on refinement, wonder on wonder, till his faculties become bewildered in admiration, and his intellect falls back on itself in utter hopelessness of arriving at an end."—*Herschel's Study of Natural Philosophy.*

The union of science with diligence produced a due result—the labours of the philosopher not quite leading to the philosopher's stone, but turning a great deal into gold*, not only placing himself at ease, but enabling him to do most liberal acts. It is said that when a near connexion wished for and requested him to obtain by his solicitation some place under Government, he said that he had never applied for himself or any other, and never would sacrifice his independence by so doing, but as a better mode of assisting he sent him the enclosed (it was a cheque, it is said, for £6000). A short time before his death he gave munificent sums to the Royal and Geological Societies†, and when he could no longer live to benefit the living by such deeds, he bequeathed to every member of his family a very considerable sum. At ease and at liberty now to walk in the paths of science. He was ever pursuing them. In almost every department he seemed at home, and his various and luminous papers in the Philosophical Transactions are well known. Of the Royal Society he was almost an integral part, receiving repeatedly one of its medals, acting for some time as one of its Secretaries, and upon Sir Joseph Banks withdrawing from the chair, for some time the Vice-President of it. Many of his friends wished that he should become the *President* of that learned body, and in point of science and acquaintance with almost every department of it, he was well fitted for that distinguished situation; but he felt that it was not suited to his means or habits, that there were other qualifications necessary, and he preferred serving the cause of science in a less eminent position. His knowledge, however, was most universally admitted, his opinion repeatedly asked, and so cautious and sure was his judgment, that those who were in the habit of asking it frequently, gave him the name of "The Pope." In latter years he mixed more among private friends. As I had the duties of a large parish to attend to, my own opportunities of personal communication were of course rare, but I continually had letters from him, and he

* A similar instance of reward (if it may be called reward) of scientific labour attended his intimate friend, Mr. Edward Howard (the brother of the late Duke of Norfolk), from his discovery of an improvement in the method of refining sugar.

† To the Geological Society he gave 1000*l.*, and to the Royal Society 2000*l.*, 3 per cent. reduced, the dividends arising therefrom to be applied in promoting or rewarding scientific researches.

was occasionally in Suffolk. He was also, when in the country, not disinclined to country amusements. He had, like the writer of *Salmonia*, and other sçavans of that day, taken up, in the last twelve years of his life, fishing, nay shooting; and by watching and following the habits of his prey, by his observations on their peculiarities, or the different mode of rising or moving of birds when on wing, he generally succeeded; while new subjects were suggested in the manner or quickness of firing, or the compressed form of patent shot, no longer spherical, but more nearly cubic, by the compressive violence of the discharge. But whether detecting, by certain *remains*, that hyænas had inhabited the Yorkshire caves, or the manner in which silkworms devoured the leaves of mulberries; whether finding that unannealed glass might be tickled to pieces by a particle of flint, or a web from its tenuity float in a room; there was some observation or reasoning peculiarly his own; and in the street or the study, in town or in the country, whether angling* for trout, or testing for elements; whether attending to the "crops of partridges, or the out-cropping of strata," there was the same readiness and keenness of mind;—nusquam magis quam in minimis. "Inerat Wollastono ea perspicacitas, ut ea quæ communi hominum sensui parum obvia essent, ea statim animo arriperet atque complecteretur†.

In Dr. Paris's life of Sir Humphry Davy, there is a contrast between the genius of Wollaston and that of Davy: they were both great in their way, and each had his own;

* Sir Humphry Davy has told us an anecdote which well illustrates this observation, while it affords a gratifying testimony of the kind feeling he entertained towards a kindred philosopher. "There was—alas! that I must say there was—an illustrious philosopher, who was nearly of the age of fifty before he made angling a pursuit, yet he became a distinguished fly-fisher, and the amusement occupied many of his leisure hours during the last twelve years of his life. He, indeed, applied his pre-eminence of acuteness, his science, and his philosophy, to aid the resources and exalt the pleasures of this amusement. I remember to have seen Dr. Wollaston, a few days after he had become a fly-fisher, carrying

at his button-hole a piece of Indian-rubber, when by passing his silkworm link through a fissure in the middle, he rendered it straight, and fit for immediate use. Many other anglers will remember other ingenious devices of my admirable and ever-to-be-lamented friend."—*Salmonia*. add. note, ed. 2.—In Sir Humphrey Davy's "*Salmonia*" there are "many instances of similar kind, and it is pleasant to know how these eminent philosophers spoke of each other.

† Daubeny's *Oratio Harveiana*, quoted in Jenyns's "Observations on Natural History." Numerous other instances of Wollaston's '*perspicacitas*' might be given.

what one effected by comprehensive investigation, the other did by delicate manipulation and microscopic scrutiny. While one, by means of a powerful apparatus, was discovering the alkaline bases, and astonishing his auditors at the Royal Institution by the wonderful exemplification of them, the other, with a few instruments and contrivances of his own*, would in his study "analyse an atom;" catch a reflected object from the point of a pin, polished with a piece of hone stone; trace the invisible rays of light; by admitting a beam of it into the room through a small circular hole in the shutter, devise the method of comparing the light of the sun with that of the fixed stars, and—his last work—calculate the brightness of Sirius†, if distant from the earth only as far as the sun now is.

Perhaps the latter years of his life were the happiest. He had "changed lingering days of misery for enjoyment," and could now indulge in any taste he wished.

He was fond of *music*, and attended the ancient concerts (the scientific parts of harmonics had always been a favourite subject with him); he liked pictures, and would beat the automaton at a game of chess. No one entered more into the enjoyments of social life; whether at Althorp or Roehampton, at Welwyn, Beechwood, or at Barton, a welcome and a longed-for guest ready to enter into whatever was proposed. He was sometimes in this neighbourhood (so were many who knew him well), and often have I listened with fondness and admiration to all that was said or thought of him by a Howard, or a Kater, a Lyall, or a Sedgwick, a Bunbury, Codrington, or Horner, or by that humble-minded but highly talented author of the "Connexion of the Physical Sciences," Mrs. Somerville‡.

But the mightiest must fail, health will, and though, at first, little suspected, this was the case with him. There

* A foreign philosopher once called upon Dr. Wollaston with letters of introduction, and expressed an anxious desire to see his laboratory. "Certainly," he replied, "and immediately produced a small tray containing some glass tubes, a blow-pipe, two or three watch glasses, a slip of platinum, and a few test bottles." (Paris' Life of Sir H. Davy, p. 97, where also are two other similar anecdotes.) I happened to mention this to a kind friend,

who replied "I was directly reminded of Franklin's saying that 'he would not give sixpence for a carpenter who could not *saw* with a *gimblet* or *bore* with a *saw*.' That power of resource, whether physical or moral, has always struck me as one of the marked indications of superior minds; it is not mere ingenuity."

† Phil. Trans., 1829, his last paper.

‡ Phil. Trans. 1826.

were symptoms, of which he told not, but he stated them to a medical friend, as if those of another person, and enquired how they might be dealt with. From the reply of his friend, who little thought they related to himself, it appeared that there was mischief near the brain affecting the eyesight, producing paralysis and foreboding what must soon be the termination. Even then, however, he ceased not to "labour in his vocation;" what he considered *his* work was still uppermost in his mind. In the last interview I had with him, a few days before his death, he referred to some of his last papers, and I possess a melancholy effort of his attempt, when almost blind, to write the name of a person to whom he wished to have given, as a remembrance, one of his platina pens. The fact is, he thought it a bounden duty to disclose, for the benefit of society, all the discoveries which his great powers had enabled him to make. For many days previous to his death experiments were carrying on, under his direction, in the room adjoining that in which he lay; and almost at the last, he seemed wishing to shew how far disease could proceed without utterly destroying consciousness*.

When some friends around his bed were doubting whether he still retained his mental faculties, he made signs, as was his custom when unable to speak, for a pencil and paper: having written a few columns of numbers he summed them up, and *the sum was correct*.

He soon after expired at his house, subsequently, and now occupied by his scientific friend and worthy successor, Mr. Babbage, in Dorset Street, Dec. 28, 1828.

At the ceasing among us of such men, many are the re-

* Similar anecdotes are recorded of Mr. Cavendish and several other eminent chemists. His habit of curious observation continued to the end. He was desirous of marking the progress of disease, and the gradual extinction of the vital powers. With this view, that he might not be disturbed, he desired to be left alone. His servant returning sooner than he had wished, was ordered again to leave the chamber of death, and when he came back a second time he found his master had expired. The son of Guy Lusac wishing to put an end to his life, shut himself up in a room with char-

coal, and noted the successive effects till the writing became unintelligible. Lavoisier, "after his sentence to be guillotined was pronounced, asked to be allowed a few days respite in order that he might see the result of some experiments which he had planned, and which were going on during his confinement. The cruel answer of the tribunal was that 'the Republic had no need of philosophers,' and he was hurried to the scaffold, 1794, May 8, with 123 other victims who suffered in the course of a few hours.—"*Lives of men of letters and science by Lord Brougham.*"

flections which rush upon the mind, many which shew us our need of Revelation, to certify us by its truths, and support us by its promises.

I will only add the words of a letter which I received on the occasion from a friend of his and mine, a fellow-labourer with himself in the path of science, as firm a believer in the Word, as an ardent admirer of the Works of God, the amiable and venerable Nonogenarian, Rev. W. Kirby:—

“I condole with you on the heavy and irreparable loss which you individually, and the scientific world at large, have sustained by the removal of that great man, Dr. Wollaston, from this mortal state, to one, where all his faculties ample as they were, will be enlarged ten-fold, and his opportunities of tracing and appreciating the wonders and mysteries of creation, and of creating and redeeming love, will be infinitely increased. I fear we shall not look upon his like again.”

HENRY HASTED.