II. MINUTES of the LIFE and CHARACTER of JOSEPH BLACK,
M. D. *Addressed to the Royal Society of Edinburgh.*

[*Read Aug. 3. 1801.*]

THE merits of studious men are to be estimated by the aids they have given to the advancement of science, or the literary monuments they have left with posterity ; but if the public be gratified by their labours in these respects, readers are generally willing also to be told, who and whence they were.

JOSEPH BLACK, the person to whom these minutes relate, successively Professor in the Universities of Glasgow and of Edinburgh, Member of this Society, and of other royal and public institutions in Europe ; having made important discoveries, and having laid the foundations of many others, towards erecting a fabric of science, which has since been raised to a considerable height ; and having been himself distinguished for modesty and felicity of manners, as well as correctness of understanding, and ingenuity of research,—will, it is hoped, be thought worthy of notice on these accounts. He was born on the banks of the Garrone, in France, in the year 1728. His parents were Irish and Scots. His father, JOHN BLACK, a native of Belfast in Ireland, was settled in the wine-trade at Bourdeaux. His mother was a daughter of ROBERT GORDON, of the family of Halhead in Aberdeenshire, who was likewise settled in the same trade, and at the same place, and in consequence of his success, was enabled to purchase, with additions, the estate of his elder brother,

brother, greatly encumbered by the debts of those who had possessed it for some generations preceding. The mother of JOSEPH BLACK, and the mother of JAMES RUSSEL, late Professor of Natural Philosophy in the University of Edinburgh, were sisters; and the mother of ADAM FERGUSON, Professor of Moral Philosophy, was their aunt; a circumstance which was the origin, though not the cement, of a friendship subsisting between them through life.

WHILE Mr BLACK, the father, lived at Bourdeaux, the great MONTESQUIEU, being President of the Parliament or Court of Justice in that province, honoured Mr BLACK with a friendship and intimacy, of which his descendants, to this hour, are justly proud. They preserve letters, or scraps of correspondence, that passed between the President MONTESQUIEU and their ancestor, as they would titles of honour descending in their race. On a paper wrapped round a bundle of such letters, the following note is found in the handwriting of JOSEPH BLACK. “ My father was honoured with President MONTESQUIEU’s friendship, on account of his good character and virtues. He had no ambition to be very rich; but was chearful and contented, benevolent and liberal-minded. He was industrious and prudent in business, of the strictest probity and honour, very temperate and regular in his manner of life. He and my mother, who was equally domestic, educated thirteen of their children, eight sons and five daughters, who all grew up to men and women, and were settled in different places. My mother taught her children to read English, there being no school for that purpose at Bourdeaux.”

So much may suffice for an account of JOSEPH BLACK’s parentage. No words, added to those used by his son, to delineate the father’s character, can improve it; and nothing more is wanting, to account for the regard with which he was honoured by the President MONTESQUIEU. This illustrious personage,
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together with a great simplicity of heart in himself, had a glowing sense of modest merit in others, and a partiality also for the manners and institutions of the British nations, which he thought singularly happy, and in respect of which, he willingly listened to any important details. On being made acquainted with BLACK's intention of leaving Bourdeaux, he wrote to him a letter, in which, with other expressions of kindness, are the following: "I cannot be reconciled to the thoughts of your leaving Bourdeaux. I lose the most agreeable pleasure I had, that of seeing you often, and forgetting myself with you *."

A FEW years before Mr BLACK retired from business, his son JOSEPH, in the year 1740, being about twelve-years of age, was sent home in order to have the education of a British subject; and having, for some years, gone to school at Belfast, or its neighbourhood, was sent to continue his education at Glasgow College, where he passed through the ordinary course of preparation for any of the learned professions to which he might devote himself; and upon his father's requiring him to make a choice, he took to medicine, as agreeable to the habit of physical studies which he had already acquired.

IN entering on this pursuit, he became connected with the celebrated WILLIAM CULLEN, M. D. then Professor of Medicine at Glasgow, and was distinguished through life by this ingenious man with an uncommon degree of friendship and confidence, which he did not fail to acknowledge and to return. In continuing the same studies afterwards at Edinburgh, he, as well as ADAM FERGUSON, lived with their relation JAMES RUSSEL, whose singular correctness, and precision of thought, in various branches of science, could not fail to be of use to all who approached him.

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BEFORE

* " JE ne me fais point à l'idée de vous voir quitter Bourdeaux. Je perds le plaisir le plus agréable que j'eusse, qui étoit de vous voir souvent, et de m'oublier avec vous."

BEFORE JOSEPH BLACK offered himself a candidate for a degree in medicine, he had already made his discovery of Fixed Air; that is to say, of an elastic fluid, which being fixed in calcareous and alkaline substances, is dispelled from them in their calcination by fire, or effervescence with acids, leaving a residuum, which, in the absence of this air with which it had been combined, becomes caustic; a quality which it retains until the air of which it was deprived is again restored. Pure chalk, or pure calcareous matter of any form, in this experiment, loses about two-fifths of its weight, or, more accurately, forty-one parts in the hundred. Here, accordingly, is a ready way of assaying limestone or marl, to ascertain its purity or its value, to the husbandman in particular, who would employ it to improve his soil.

THE air obtained in this experiment has its peculiar qualities. Besides that of being fixable in stone, it is heavier than common air, its specific gravity being nearly double. Flame is extinguished, and animals are suffocated in it equally as in water. By this discovery, notwithstanding the ingenious and copious observations of Dr HALES and others, on the subject of what were called Factitious Airs, it was reserved for BLACK to give a spur and a new direction to the researches of science.

FROM this beginning, great progress has been made in distinguishing varieties of elastic fluid, and in ascertaining the composition of the atmosphere itself. Chemistry was become a favourite study in France, as it had long been in Germany, and the report of a new species of air was every where received with avidity. The experiments of BLACK were repeated, and the inferences confirmed by ingenious men both at home and abroad; though by some in Germany the result was at first contested, and a controversy arose, in which it does not appear that BLACK took any part, nor does any doubt now remain of the fact, as stated by him, or of the inferences he drew from it*.

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* Vid. *Opuscles Physiques et Chimiques* par M. LAVOISIER.

AN elastic fluid, indeed, of the same qualities, has been since obtained from various sources; from vinous fermentation, from the earth itself, laid open in grottos or fissures, from mineral springs, from the breathing of animals, and from the combustion of charcoal. This air is found to have the properties of an acid; and the French chemists, being led by their experiments to consider it as produced by the union of the principle of charcoal with vital air, have laid aside the appellation of Fixed Air, and have substituted that of Carbonic Acid Gas in its stead.

IF the researches to which the observation of fixed air gave occasion, had terminated here, the accession to science, though important, had been comparatively small. The composition of the atmosphere, the distinction of vital and mephitic air, the effects of respiration, and the conjectural theories of combustion and animal heat, might have remained unknown.

HERE, however, no mean progress has been made, and names too numerous to be recited in such minutes as these, will, on account of their part in these studies, go down, with well-merited lustre, to future ages. Nations may hereafter contend for the honour of such discoveries as were made by LAVOISIER, PRIESTLEY and others *, not merely of single or insulated facts, but of a magnificent order existing in nature, for the continuance of vegetation and animal life. Even France and England, though

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rich

* To LAVOISIER we owe the discovery, that atmospheric air is not homogeneous, but composed of nearly three parts of azot, which is not of any effect in respiration, otherwise than as it dilutes the remaining fourth part, or the vital air, which, without being so diluted, would be too intense either for the purpose of animal respiration or of common fire.

To PRIESTLEY we owe the discovery, that the well-known corruption or waste of vital air, in the burning of fuel, or the respiration of animals, is repaired in the vegetation of plants.

IF in science there might be any choice of truths, I would willingly hope that the decomposition of water may be found a mistake.

rich in the treasures of science, and each having much to boast of its own, may, in the future, as in times past, be jealous of what is gained by its neighbour; it is pleasant, however, to observe, that the individuals chiefly concerned were untainted with such illiberal passions. LAVOISIER, in sending to BLACK a copy of his experiments on respiration, tells him: "It is but just you should be one of the first to receive information of the progress made in a career which you yourself had opened, and in which (he says) all of us here consider ourselves as your disciples*." To this BLACK replied, with a just admiration of what the French chemists were doing, and, as might be expected from his modesty, without reference to any merit of his own.

NEARLY about the same time that BLACK made the discovery of fixed air, his mind was already at work on the phenomena of latent heat. Among his papers are found some note-books, in which he had inserted observations and queries, medical, chemical, and miscellaneous, accompanied with particular references or allusions to times and circumstances, which serve to fix dates within certain limits at least. In one book, the notes appear to have been written while he was a student at Edinburgh, or candidate for his degree, in the year 1756; at which time he made or published his discovery of fixed air. In this book are contained conjectures and queries relating to the cold produced in the liquefaction of salt and snow, and in general in the solution of salts in water. Seeming to have the doctrine of latent heat in his view, "Is it not," he says, in one place, "owing to this that all bodies, in becoming fluid, have occasion for more heat than in their solid state?" In another place he says,
 "Does

* "IL est bien juste, Monsieur, que vous foyez un des premiers informés des progrès qui se font dans une carriere que vous avez ouverte, et dans laquelle nous nous regardons tous comme vos disciples."

“ Does not the heat produced in the slacking of quicklime, arise
“ from the sudden fixing a part of this fluid (water) into a solid
“ state? Is not this the case in the setting of gypsum?” In the
same way he accounts for the intense cold produced by ice and ni-
trous acid, applies the principle again to all saline solutions, and
ascribes the slow granulation of salt to the re-appearance of heat.
“ Is not ice,” he says, “ crystallized water? and does it not al-
“ ways feel cold, because it melts on our handling it? This is
“ similar to the solution of salt in water.” These notes, from
circumstances intermixed, appear to have been written as early
as 1756. In a following note-book, which, from circumstances
also, does not appear to be of a later date than the year 1757,
there are several queries, of the same nature with those above
mentioned, particularly with respect to the curious observation
of FAHRENHEIT, that water, if not disturbed, will cool below
32 degrees without freezing, but the moment it is disturbed, it
raises the thermometer to 32 degrees, and freezes. “ Is not this,”
he says, “ the heat that is unnecessary to ice?” In the same
note-book conjectures are carried still farther, and applied to the
production of vapour. A way is mentioned to estimate the
quantity of heat which is employed and disappears in the for-
mation of vapour, and cannot afterwards be discovered by the
thermometer. “ Place a phial,” he says, “ with water, close-
“ corked in a stove; open it suddenly, and see how much of it
“ is converted into vapour, while the water comes down to the
“ boiling point.” Observations to the same effect are continued
through six small note-books; in different places of which, it is
observed, that animal heat originates in the lungs, and that heat
always accompanies the production of fixed air.

FROM these notes, it appears, that the experiments in which
BLACK evinced his doctrine of latent heat to the satisfaction of
his pupils, were not made at random, or without previous appre-
hension of the fact, as it appeared in the ordinary course of na-
ture

ture or chemical phenomena. "Heat," he observed, "is in nature the principle of fluidity and evaporation, though, in producing these effects, it is latent in respect to the thermometer, or any sensation of ours; and as matter, otherwise quiescent, becomes voluble and volatile in liquid and in vapour, heat may be considered in nature as the great principle of chemical movement and of life. If it pass through vacuity as well as through body, as it certainly does in its communication from the sun to the planets, we must consider it not as an accident in bodies, but as a separate and specific existence, not less so than light or electric matter*; and though agreeing with these in some of its effects, in its nature possibly different from either." But such was BLACK's caution not to outrun the course of actual evidence, that he declined any discussion of the question, relating to the absolute nature of this magnificent power in the system of nature.

My reading in chemistry does not enable me to say, how far the doctrine of latent heat is, in these precise terms at least, admitted as a principle in the received theories of combustion and animal heat; but, to my limited apprehension, it appears to be the only solid foundation of any theory that proceeds upon the supposed decomposition of *ignifying* or vital air, manifesting a light and heat previously latent in such air. We can have no direct proof of latent heat in the atmosphere, or permanently elastic fluids, and it is from analogy only that we assume it to exist in such fluids. The maxim of NEWTON, indeed, may be applied here, that what is uniformly observed in any department of nature, as far as our experience reaches, may be safely deemed general within such department; and the heat which we find disappear

* It is no doubt a mighty increment in science, to have found such powerful substances operating, as the writer of these minutes apprehends, without gravitation, inertia, or impenetrability, the great bases and columns of the mechanical philosophy.

appear in liquefaction and evaporation, we may safely assume as existing also, though in a latent state, in every fluid of a similar form. Even BLACK admitted, that in the atmosphere, under all the manifest changes of its temperature, there may be, and probably is, a very great measure of latent heat.

SUCH were the scientific discoveries of BLACK, when residing as a student at Glasgow or at Edinburgh, at least before his nomination to a professorship at either place. When his friend Dr CULLEN was removed from Glasgow to Edinburgh, BLACK was appointed to succeed as Professor of Medicine at the former place; and following his example as lecturer on Chemistry also, was, from this time forward, more employed in detailing particulars already known, for the information of his pupils, than in pursuing any series of investigation for himself.

IN entering upon this task, it became matter of course to define the science, and even in this our Professor gave a specimen of his character, and the modesty of his pretensions, in a matter formerly enveloped in mystery, and the affectation of magical power.

THE science of nature, indeed, is interesting in all its branches, whether they rise into the heavens, or sink into the bowels of the earth. We are placed in a busy scene, and have our safety and accommodations at stake, in the midst of operations and changes that greatly affect them. The principles that operate in our system are the objects of our science, and when known, become the instruments of our art, towards procuring what it has pleased Providence to make the conditions of our preservation and well-being. In respect to these principles, science becomes an accession of skill to every manufacturer, and to every labourer of the soil, as it is to the contemplative an opening into the interior springs, which are employed in the production of so much beauty and order in the system of nature around us; and this is the rank of importance, which, without the pretensions of alchemy,

alchemy, or the mysteries of supernatural power, the chemist might assume to his studies. But, in these, BLACK still saw no more than research and inquiry, far short of complete science or comprehensive system, and he characterized the study on which he was to enter, by the use of its principal instruments, Mixture and Heat. If discoveries have since raised it to a higher rank among the branches of natural science, he himself has contributed his share in the progress it has made. He had published his discovery of fixed air, in a pamphlet, about the time that he obtained his degree in medicine; but that of latent heat was never otherwise published than as a part of his academical course. His pupils, indeed, being numerous, and from different parts of the new, as well as the old world, made his doctrine sufficiently known*.

AFTER a few years employed by CULLEN in the first profession to which he was appointed at Edinburgh, he was removed to a different branch of the medical school; and BLACK, as before, being called to succeed him, was, on the 17th of April 1766, admitted Professor of Chemistry at Edinburgh. His talent for communication being noway inferior to that which he possessed for observation and inference, his manner of acquitting himself in his new situation gave additional lustre to the schools of science, and rendered him one of the principal ornaments of the University, in which he continued, for about thirty years, to teach the different branches of chemistry, with a reputation always increasing. His style was characterized by the most elegant simplicity. His address in performing experiments was remarkable, and

* THE writer of this article has little more than heard of chemistry as a branch of general science, and fondly embraced any doctrine as it seemed to connect with the system of nature; but farther, his own studies have been so different, that he would not, if he could, charge his mind with any of its practical details; and he pleads the reader's indulgence, if, under this defect in treating of BLACK, he hastens to subjoin a description of the man to so imperfect an account of his science.

and in the impression he made, subjects perplexed or intricate became perspicuous and clear of superfluous or questionable matter. To the last, and under symptoms of declining health, his mind gave proofs of strength undiminished. In speaking, his voice, though low, had an articulation which made him be distinctly heard through every corner of a spacious hall, crowded with some hundreds of his pupils: and the simplicity of his expression, if not eloquence, had, to those who listened for information, something more engaging and powerful than any ornament of speech could produce.

AVERSE to hypothesis or vain conjecture, his science was a just comprehension of facts, and might be adopted by any artist who consulted him, with as much safety as he relied on any practice he himself had experienced. His time and attention being devoted to the communications which his pupils had a right to expect from him, very much limited his practice as a physician. But where he was called or could attend, his manner was singularly acceptable. Without flattery, or uncommon pretensions to skill, he won the confidence of his patients, and, with unaffected concern for their benefit, was often successful in mitigating their sufferings, if not in removing their complaints. He was, in short, a physician of great repute, in a place where the character of a physician implies no common degree of liberality, propriety, and dignity of manners, as well as learning and skill. Never being anxious to bring himself forward into public view, little may remain with posterity to distinguish him as an author, unless his executors should think proper to publish the notes from which he used to prelect, and which, notwithstanding the subsequent progress of science, may still be of use to the student, as a most solid foundation on which to proceed in his studies.

AMONG the few things published by himself in his own time, we may reckon his Thesis or inaugural essay, *De Acido a Cibis*
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orto, et de Magnesia Alba:—Experiments on Magnesia, Quicklime, and other Alkaline Substances, printed between the years 1754 and 1756:—*Observations on the Effect boiling has upon Water, in making it freeze more readily*, inserted in the sixty-fifth volume of the Transactions of the Royal Society of London, for the year 1774:—*Analysis of the Waters of some Hot Springs in Iceland*, made at the request of his friend Mr STANLEY, who brought the specimen for his inspection; inserted in the third volume of the Transactions of the Royal Society of Edinburgh:—*Two Letters*, one published in the year 1784, by Professor CRELL, in the tenth volume of his Collections; the other addressed to Monsieur LAVOISIER, and published in the *Annales de Chimie*.

WITH these notes of our Author's professional distinction, readers will not expect any tale of adventures or remarkable events, which the lives of studious persons seldom afford; and we must conclude with a few lines of character, such as those who are placed in like circumstances may understand as spoken of themselves, and for their advantage.

HIS aspect was comely, his manner unaffected and plain, and as he never had any thing about him for ostentation, he was at all times precisely what the occasion required, and nothing more. Much as he was engaged in the details of his public station, and chemical exhibitions, his chamber never was lumbered with books, specimens of natural history, or the apparatus of experiments; nor did any one ever see him hurried at one time to recover any matter which had been improperly missed at a former. Every thing being done in its proper time and place, he ever seemed to have leisure in store, and he was ready to receive his friend or acquaintance, and take his part with complacence, in any conversation that occurred. No one ever, with more ease to himself, refrained from professional discussions of any sort, or, in mixed company, more willingly left the subject of conversation

to be chosen by others. Many years member of a society * composed of men of the highest rank, of Judges, lawyers and military men, as well as citizens and professed men of letters; he kept his place with propriety, and in this group never betrayed any awkward peculiarity of his education or calling. His more intimate associates and friends, besides those of his own profession CULLEN and MONRO, were JAMES WATT, now of Birmingham, an engineer of the first order, whether ancient or modern, and who has happily united, in the grounds of his art, chemical as well as mechanical science; Mr GEDDES of the Glass-works at Leith, an eminent manufacturer, who well knew the value of his friend's suggestions. Such intimates as these could scarcely allow BLACK to relax from the toils of his professional studies. But he had others, for whom his profession had no charm, and whose attachment to him, as to one another, arose from the experience of ingenuity and candour, rather than the identity of studies, or agreement of opinions. Such were DAVID HUME, Esq; Dr ADAM SMITH, JOHN HOME, ALEXANDER CARLYLE; and JOHN CLERK of Eldon, of whom the last, without having ever been at sea, instructed the navy itself in naval tactics. At the head of either list, however, in respect to BLACK's habits of intimacy, ought, perhaps, to have been placed JAMES HUTTON, who made up in physical speculation all that was wanting in any of the others. It may be difficult to say, whether the characters of BLACK and HUTTON, so often mentioned together, were most to be remarked for resemblance or contrast. Both profound in

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physical

* THIS society formed itself, about the year 1770, upon a principle of zeal for the MILITIA, and a conviction that there could be no lasting security for the freedom and independence of these islands, but in the valour and patriotism of an armed people. It became known, by some whimsical accident, by the name of the *Poker Club*.

physical science, and rigid adherents to fact, in exclusion of hypothesis or vain conjecture. Both of consummate humanity and candour. BLACK was serious, but not morose; HUTTON playful, but not petulant. The one never cracked a joke, the other never uttered a sarcasm. BLACK was always on solid ground, and of him it might be said, *Nil molitur ineptè*. HUTTON, whether for pleasantry or serious reflection, could be in the air, speculate beyond the laws of nature, and treat the common notion of body, with its magnitude and figure, as a mistake. In these speculations BLACK never took any part, farther than to be diverted with any play of fancy, or refinement of thought, which, he well knew, in the case of his friend HUTTON, did not preclude the use of correct and sober reason when the subject required it, or was within its cognisance. The researches of HUTTON were unremitted, and his reference to the order and arrangement of this, which he called a Living World, was judicious and happy*. Unreal as corporeal subjects were in his apprehension, he established a lucrative manufacture, on principles of chemistry, and was for many years of his life keenly employed in the practice of agriculture. To this he was led by becoming a proprietor of land on the death of his father, when he hastened to Norfolk, where he had formerly lived with a farmer, to observe the husbandry of that country. There he purchased a plough, hired a ploughman, and brought both on the post-chaise with him to Berwickshire. The neighbours were diverted with this assortment of company and baggage, and no less with the attempt which followed, to plough with a pair of horses without

* HE, too, had carried his studies so far as to obtain a degree in medicine; but an attempt to consult or see him would have been met with a laugh, or some ludicrous fancy, to turn off the subject.

out a driver. This joke, however, has become serious, and is now the general practice from one end of Scotland to the other*.

IN returning to BLACK from this enumeration of his intimate friends, serving, perhaps, to disclose his character no less than any other circumstance relating to him, we but hasten to the conclusion of a life no less distinguished by correctness and propriety of conduct, than by ingenious reasoning, and scientific research. Fully entitled to the appellation of *Frugi*†,—that seemingly cant expression, of which the old Romans were so fond,

* HAVING said so much of HUTTON in this occasional notice, so far short of his merits, it may not be improper to prepare those who may consult him as an author, to meet with a disappointment for which his friends could never rightly account. Though uncommonly luminous and pleasant in conversation, he was obscure, unintelligible, and dry in writing, to an equal degree. His favourite specimens of natural history, he used to say, were God's Books, and he treated the books of men comparatively with neglect. This may, in some measure, account for his want of style or his indifference to language. In company, he spoke to be understood by such as were present, and when obscure, was called upon to explain himself. But alone, he was not aware that others could be at a loss for a meaning so clear to himself. From this circumstance, (notwithstanding many volumes written in the last years of his life, more numerous, perhaps, than all he ever read that were written by others, except the voyages and travels, from which he was perpetually collecting facts to complete his view of the terrestrial system), his very ingenious conceptions, to be received as they ought, must come from some other pen than his own.

† ON this subject we may consult the following passage of CICERO, *Tusc. Quæst.* lib. iii. c. 300. "Sed quia, nec qui, propter metum, præsidium reliquit, quod est Ignaviæ; nec qui, propter avaritiâ, clam depositum non reddidit, quod est Injustitiæ; nec qui, propter temeritatem, malè rem gessit, quod est Stultitiæ, *Frugi* appellari solet. Eas tres virtutes, Fortitudinem, Justitiâ, Prudentiam, frugalitas est complexa; et si hoc quidem commune est virtutum: omnes enim inter se connexæ et jugatæ sunt. Reliqua igitur et quarta virtus, ut sit ipsa Frugalitas. Ejus enim videtur esse proprium, motus animi appetentis regere et sedare; semper adversantem libidini, moderatam in omni re servare constantiam, cui contrarium vitium Nequitia dicitur."

fond, that they used it to denote the foundation, or the summary of all the virtues, he carried into his private affairs the same order and good conduct which he employed in his professional duties ; and he reaped, through life, the benefit of his attention to this particular, in the ease of his circumstances, and in the power it gave him, on occasion, to assist a friend, or contribute to the attainment of any public convenience. From those, indeed, who can mistake remissness or improvident waste for generosity, BLACK may have incurred the imputation of penury. But the proofs of this charge, if ever it were brought, in his case were not to be distinguished from the effects of sound reason and good sense. No one ever struck the proper medium more exactly than he did. His expences were regulated, but nowise fordid, or unbecoming his station. His house was spacious ; and his table, at which he never improperly declined any company, was elegant and plentiful, rather above than below his condition. His contributions for public purposes were liberal, and his purse was always open to assist a friend. Much of his practice as a physician arose from his previous connection with the patient as a friend ; and he was as assiduous where he would not accept, or where he could not expect a fee, as in the most lucrative part of his profession.

His own constitution never was robust ; and every cold he caught, or any approach to repletion, affected his breast so much as to occasion a spitting of blood. This he guarded against, by restricting himself to a moderate or abstemious diet. As his infirmities increased with age, he met them with a proportional attention and care, regulating his food and exercise by the measure of his strength ; and thus preventing the access of disease from abroad, he enjoyed a health which was feeble, but uninterrupted, and a mind undisturbed in the calm and chearful use of his faculties. A life so prolonged had the advantage of present ease, and the prospect, when the just period should arrive, of a calm dissolution.

tion. This accordingly followed, on the 26th of November 1799, and in the seventy-first year of his age, without any convulsion, shock, agitation or stupor, to announce or retard the approaches of death. Being at table, with his usual fare, some bread, a few prunes, and a measured quantity of milk diluted with water; and having the cup in his hand when the last stroke of his pulse was to be given, he appeared to have set it down on his knees, which were joined together, and in this action expired, without spilling a drop,—as if an experiment had been purposely made, to evince the facility with which he departed. So ended a life which had passed in the most correct application of reason and good sense to all the objects of pursuit which Providence had prescribed in his lot. His effects, when looked into, shewed how much he had profited by the order and just arrangement he had ever maintained in his affairs; amounting almost to double of what any one thought his income or his frugality could have enabled him to acquire. The whole was disposed of by will, without specifying any sum, in a neat and satisfactory manner. Being divided into ten thousand shares, it was parcelled to a numerous list of relations, in shares, in numbers, or fractions of shares, according to the degree in which they were proper objects of his care or solitude.

THIS account of JOSEPH BLACK, however inadequate to the merit of its subject, is inscribed to the President and Members of the Royal Society of Edinburgh,

By their faithful Associate,

And humble servant,

HALLYARDS, in Tweeddale, }
23d April 1801.

ADAM FERGUSON.