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THE

YOUTH'S INSTRUCTOR.

[No. 5.]

MAY, 1824.

[Vol. 1.]

CHEMICAL ESSAYS.

No. 1.

HOMOGENEOUS AND HETEROGENEOUS ATTRACTION—CALORIC.

THERE is perhaps no branch of science which has improved so rapidly within the last thirty years as that of Chemistry. Before that time it wanted regular classification, and was entirely veiled from the eyes of all but the professed philosopher, owing to the confusion of its nomenclature. But now it presents to all an interesting field of enquiry, which will amply repay the casual as well as the unintermitting labourer. By the help of this science, he may examine and admire the works of the great Creator of the universe, as well in the objects which are constantly before him, as in the grander operations of nature. To give a brief outline of this interesting branch of knowledge will be the object of this and the following papers.

The investigation of the properties and mutual action of elementary parts of bodies, and all changes in the constitution of matter, whether effected by heat, mixture, or any other means, may be considered as the peculiar province of chemistry. It must therefore be one of the most diffuse subjects

upon which we can enter; and to treat it with regularity will be indispensably necessary. Let us first then take a view of the powers and properties of matter connected with chemical changes. These may be viewed under the heads of—

- I. HOMOGENEOUS ATTRACTION.
- II. HETEROGENEOUS ATTRACTION.
- III. CALORIC, OR HEAT.
- IV. ELECTRICITY.

Homogeneous attraction, or the attraction of cohesion, always tend to the union of particles of the same nature. This it is which under the name of gravitation attracts all bodies to the earth.—The chief connexion it has with chemistry is, that it may be considered as being the primary cause of crystallization; a subject upon which our narrow limits and its present uncertainty must prevent our enlarging. We will therefore pass on to *heterogeneous or chemical attraction*. This, from some property unknown to man, causes particles of different natures to unite in various manners. If into a glass containing a piece of copper, some nitric acid* be poured, the acid will immediately unite with the copper, and form a new compound, which does not partake of the properties of its elements, but presents a distinct character. This is the first thing we should observe in the unions caused by chemical attraction; that, for the most part, the compound formed differs entirely from both its elements; whereas, in the unions caused by homogeneous at-

* Nitric acid will be treated of in the course of these papers. For the sake of preserving regularity no more than its name can now be mentioned. It may be obtained at the chemist's, by any person desirous of trying the experiment, but great care should be taken in using it, as it is a very corrosive fluid, and rapidly destroys cloths.

traction, no change in the nature of the matter acted upon can take place. Thus, in the case before us the acidity of the nitric acid is gone, and a body remains which partakes of none of its powers. The *chemical nature* of the body is not the only thing that experiences a change. Frequently the colour and solidity of the body are equally affected. In the case before us, the resulting compound is of a beautiful blue colour, which was seen in neither of the original bodies. Solids are changed by it into aeri-form shapes, as when gunpowder is inflamed. But we may also observe that, during the process of this union, great commotion appears in the bodies acted upon. This is the case in the instance to which we have already alluded. A great deal of air is extricated during the decomposition of the copper. In many unions, however, the immediate effect is much greater. If sulphuric acid* be added to water, in the proportion of four pounds of the former to one of the latter, so much heat will be produced in the mixture as to raise the thermometer to 300° Fahrenheit.

We shall also find that, after a time, this commotion will cease: from which we may learn that nitric acid and copper will only unite in certain proportions.

Another very important fact in the system of chemical attraction is, that different bodies are possessed of different attractive powers. If into the solution (chemically termed *nitrate of copper*) which we obtained in the former experiment, a piece of iron

* Further mention of sulphuric acid must be postponed for the same reason as that of nitric. It may be obtained at the chemist's. Greater care should be taken of this than of the nitric, as it destroys not only clothes, &c. but also animal fibre, and consequently would cause painful wounds.

be immersed, you will perceive that it will be immediately covered with a thin coating of copper. The cause of this is, that the nitric acid has a greater affinity to the iron, than to the copper it holds in solution; that, consequently, it quits the copper and forms a new compound with the iron; the copper being thus relinquished is *precipitated*, and forms that thin coating which you may observe on the surface of the iron. Upon this principle depends the power of chemically decomposing bodies, i. e. reducing them to their original matters. Here the copper is first dissolved by the acid, and then the compound thus formed is decomposed by the intervention of the iron, and the copper restored in its former state. On this principle it is that chemical tables have been formed, by which at one view the chemist may be informed of the various powers of attraction between different matter. A single column of this sort is here introduced as a specimen.

Sulphuric Acid.

BARYTA. STRONTIA POTASSA SODA		LIME. MAGNESIA. AMMONIA.
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From this table we should deduce that sulphuric acid had a greater affinity to baryta than to strontia, to strontia than to potassa, to potassa than to soda, and so on; and, consequently, that baryta would decompose any compound of sulphuric acid formed with those bases enumerated after it. There are two classes of decomposition, simple and double. In the simple, one body separates a second from its combination with a third. In the double, two new

compounds are formed; as when nitrate of baryta* and sulphate of soda are mixed, the nitric acid of the former compound quits its form, and enters into a new compound with the soda; while the sulphuric acid quits the soda, and enters into a new compound with the baryta: so that two new compounds, nitrate of soda and sulphate of baryta, are formed. It is evident from what has been said, that there are some laws which govern the union of particles of different natures. Concerning these and concerning the causes propelling the particles to unite, many conjectures have been made, but nothing certain has been discovered. Some suppose that all particles of matter are endued with one of the two electricities, and that these subtle fluids are always tending to unite. But as we do not intend to enter upon the more abstruse points of chemistry, but merely to take a general and popular view of the science, we will pass on to the next general power alluded to, *heat*, or *caloric*.

There are many doubts entertained as to the nature of this agent. It is however generally supposed to be a fluid pervading, more or less, all matter, and has been divided into

I. FREE CALORIC.

II. SPECIFIC HEAT, OR COMBINED CALORIC.

The name caloric has been proposed in the new nomenclature as a substitute for heat, which has by common use been applied merely to the *sensation* of heat. One of the great characteristics of caloric is, that it always tends to an equilibrium. It may

* Although the reader may not yet know what these drugs are, he may still make the experiment alluded to. It would be quite impossible to preserve any regularity of design, if we stopped to explain the nature of each drug alluded to by way of example. They will all of them be explained hereafter.

be supposed that there are rays of caloric flowing in all conceivable directions from all bodies. But when any body is below the temperature of those around it, the rays of caloric flowing from it are not equal in number to those which it has a capacity for receiving, and consequently its temperature is gradually heated to the same warmth with the objects around it. When bodies are once raised to the same temperature with the atmosphere around them, they radiate and absorb caloric in equal quantities, so that they preserve their equilibrium. Cold is merely a negative subject, implying the absence of heat. Thus, when we lay our hand upon a marble slab, the *feeling* of cold which we experience, is merely the caloric flowing from our hands into the marble, and endeavouring to raise the marble to the same temperature.

We have already observed that caloric is proceeding in different rays from all bodies. This is called the *radiation of caloric*. Different bodies have different radiating powers. This has been clearly proved by the experiments of Mr. Leslie. All heat which is perceptible to the senses may be considered as free caloric.

Besides the power of radiation, caloric may be reflected, subject to the same laws as those which govern optical reflection.—Another very important power of caloric is, its expanding all bodies, and thus acting in direct opposition to the attraction of cohesion. It affects this by introducing its particles between the particles of the body upon which it acts. The power of bodies to bear in this way the introduction of caloric between their particles, is called their conducting power. All bodies have more or less the power of conducting caloric, but some possess it in a much stronger degree than others,

Generally the denser bodies, such as metals, &c. are the best conductors of caloric. Porous substances, such as wood, cork, &c. are the worse conductors, down to woollen cloth, flannel, and down, which is one of the lightest bodies and at the same time one of the worst conductors. The reason of this may probably be, that in the dense substances there is much less air, which scarcely conducts caloric at all. On this principle of the different conducting powers of bodies, depends the mode of clothing ourselves. Flannel and woollen dresses being very bad *conductors* of caloric, prevent, when the temperature of the atmosphere is lower than that of our bodies, the escape of the animal heat from them, and thus keep us warm in the winter season. The same dress would keep us cool when the atmosphere was warmer than our body, as it would prevent its penetrating to our frame. If you lay your hand on a piece of marble, on the wood of the table, and on the carpet of the room, they will all *appear* to you to be of *different* temperatures; the marble coldest, the wood medium, the carpet warmest, and yet the thermometer would inform you that they are *really* of the *same* temperature. The reason of this is, that the marble being the best conductor of caloric of the three, (as they are all of a temperature below that of your hand, though of the same with the atmosphere,) absorbs from you the caloric you possess more *rapidly* than the others; and though it really makes you no colder than the others would in the end, yet as it produces the same effect in a shorter time, the change is more sudden, and consequently the sensation of cold (which we must always remember is merely the abstraction of caloric) is much greater. The reverse of this would be seen, from the same cause, were we to put three

pieces of ice on the various bodies enumerated. In this case, that on the marble would first be melted, that on the wood next, and that on the carpet last, because, here the conducting power would act the other way, and induce the marble to part with its excess of caloric to the ice more readily than the wood or the carpet could do. And here we must admire and adore the gracious dispensations of a Being who has stooped to adapt the various coverings of his creatures to the circumstances in which they are placed. Who has provided those most exposed to cold with furs or with plumage, and who has especially guarded with *down* (the worst conductor of caloric known to us) the breast of aquatic birds, which is the part most exposed to the action of the water.

(*To be continued.*)

BIBLICAL ESSAY.

THE FIGURATIVE STYLE OF SCRIPTURE.

ALTHOUGH sceptical readers of the Bible may be disposed to ridicule some of those figures which appear to them extravagant, and even absurd; yet any one who lends an impartial attention to the subject, will clearly perceive that the occurrence of imagery which would be frequently obscure, and sometimes unintelligible to us, was to be expected in any composition formed on the model of our sacred writings.

First. The innovating hand of time has rendered many things obsolete: and, consequently, the allusions which in metaphorical language are made to those things must be difficult, if not impossible, to be understood. And when we recollect that some

portions of the Scriptures were written more than 3000 years ago, and that the latest of them were written between 1700 and 1800 years ago, it would have been very remarkable had we lost sight of none of those customs and none of those events on which the figures of Scripture are founded.

Secondly. The difference between the scene and climate in which the sacred writers lived, and our own, forms another barrier to the right understanding of their figurative terms. This prevents us often from perceiving the full force of a passage even when its beauty, nevertheless, powerfully affects the mind. Thus when the Psalmist says, "*As the hart panteth after the water brooks, so panteth my soul after thee, O God,*" It is impossible not to be affected by the combination of chaste elegance of expression with vehement ardour of feeling. Yet in our temperate clime, where water is scarcely ever known to fail, where the sun scarcely ever pours his sickening ray upon our heads, we are not prepared to enter into all the beauty of the figure, as an inhabitant of Judea would have done. Again, the hart is not with us a wild animal, subject to the various privations which it was compelled to endure in regions where the sun had burned up its food, and dried the streams at which it was accustomed to slake its thirst. It would be no unusual thing, however, for an Israelite to see this inoffensive animal exhausted and fatigued, and panting for a drop of water; and, consequently, the application of the figure to the Psalmist's desire after God would convey an impression far more forcible than can be produced by it on our minds.

In the forty-ninth chapter of Jeremiah, we have another figure still more peculiar to the land of Judea.—*He shall come up like a lion from the swelling*

of Jordan against the habitation of the strong. In this passage too, there is obvious beauty and even sublimity of description; but it is considerably more obscure to us than the former. It would however be perfectly familiar and intelligible to those for whom it was first written. What we here know of a lion is chiefly by description, and by the exhibition of a few of these monarchs of the four-footed race engaged in caravans. These are comparatively small and feeble, and at the same time so tame through confinement and the discipline of keepers, that they shew us nothing of the true character of that unrivalled animal, who walks in conscious superiority through the forest, or bounds with resistless speed and violence across the plain, and ñ's, by his tremendous roaring, a whole neighbourhood with terror. The river Jordan, too, is so dissimilar to our rivers, as to increase the obscurity of the passage to those who are not acquainted with the peculiarities of its course. When the snows of Lebanon and of the neighbouring mountains began to melt, and when the rainy season commenced, the mountain torrents rushed into the vale below, and regularly caused Jordan to overflow all its banks, and thus inundated all the adjoining lowlands. The lion had his abode among the lofty reeds which grew on the bank of this river; and when the descending waters caused Jordan to swell so as to invade his resting-place, he was driven to madness by the intrusion of an enemy whom he could not resist, and flew to revenge himself against the inhabitants of the adjoining cities. How striking a picture of the rage and violence of an invading army!

In the second verse of the fourteenth chapter of Hosea, the prayer of repenting Israel is, "*Take away all iniquity, and receive us graciously, so will*

we render the CALVES of our lips." To an English ear there is something grating in the expression "*the CALVES of OUR LIPS,*"—and without a knowledge of Jewish peculiarities, we shall not understand it. But when we remember that *calves* were among the best of the sacrifices which were offered up to God, we gain at once a key to the explanation, and a view of the beauty of the figure. The passage, in our language, means simply this; "So will we render the best sacrifice of praise from our lips."

Thirdly. The dress and manners of the ancients were exceedingly different from ours. Their loose and flowing raiment formed a perfect contrast to the tight inelegant garb of our own time and country. A knowledge of this is necessary to explain many passages of Scripture. The girding-up of the loins is frequently mentioned in places which allude either to diligence in labour, or to swiftness in running the appointed course. Now it is obvious, that a long, loose robe, would be very inconvenient to servants who required to have their hands much at liberty, and to be able to stoop with ease in the performance of their work; and also to those who had to move quickly, and required that their steps should not be impeded, nor their feet entangled by the length of their garments. To remedy this, they always had a girdle, by means of which, when they had gathered up the skirts of their garment, they fastened it round the loins. To one who knew that he could neither work nor run without having recourse to this measure, how forcible would be such passages as these—*Let your loins be girded about, and your lights burning, and ye yourselves like unto men who wait for their Lord. Gird up the loins of your mind, be sober, and hope unto the end, &c.*

It were easy to extend observations of this kind, and to produce other causes of obscurity in the various figures which are employed in the page of inspiration. The truth is, that similar difficulties present themselves in all the classical productions of antiquity; and it would have been a strong argument against the genuineness of the Scriptures, had they been wanting in that style of speaking and thinking which was peculiar to the times in which they were written.

There is only one more remark on this subject to which the attention of the reader is particularly requested; and that is, the difficulty of conveying the true import of a figure in a translation. Let the reader take a French book, and, regardless of the idiom of the two languages, and of the different class of figures employed by them, let him translate literally, and how much would he lose of the beauty and, in many cases, of the sense of the original!

Now in a translation of the Bible there is less liberty allowed to the imagination, and even judgment of the translator, than in any other book. His business is not to embellish, and not even to give his own explanation of passages, but to put his reader in possession of the plain work of God. He must not sacrifice correctness to beauty; he must not aim at what he thinks the spirit of the passage, while he neglects the letter; because, in so doing, he may have missed its true meaning; he may have mistaken the nature of the allusion, and then he entails his own mistake upon posterity. But if he translates accurately, though the passage may be obscure to himself and to his readers, yet perhaps the information brought home by some traveller who has observed the customs of eastern nations, or

the discovery of some books of antiquity, may throw light upon it, and enable us to perceive beauties which were before concealed, and which would have remained in darkness had the translator taken the liberty which translators of other books are permitted to take with impunity.

Making then due allowance for these several circumstances, which hinder us from perceiving many of the excellencies of Scripture, are we not still constrained to acknowledge that there is no book that can stand a comparison with the Bible—none, which labours under such great disadvantages to the development of its peculiar beauties of composition, and which yet rises far above them all, exhibiting those specimens in every style of writing and of thinking, which are above all imitation and all praise.

THE JEW.

A YOUNG JEW, named Nathan, some short time ago, travelling in Germany on the public road leading to the seaport town of P—, sat down to refresh himself by the side of a wood through which it passes, and fell fast asleep. A young man, the son of an inn-keeper in the neighbourhood of the village of M—, had that morning cruelly murdered and robbed an old Jew in his father's inn. He fled in this direction from justice, and happened to pass while this traveller was asleep. Desirous of throwing suspicion on another, the more easily to effect his own escape, and not considering, or not caring what the consequences might be to the innocent individual, he halted, cautiously approaching, he

lodged the bloody knife in the pocket of the sleeping stranger, and then hastily pursued his journey.

While still asleep, two soldiers passed on the road. "Why," said one of them to his companion, "we are both of us hungry and thirsty, may we not apply to the pocket of this infidel Jew for a little money? As he is asleep, he will not refuse it." "The hint is good," returned the other, "for I am almost fainting from thirst, and I have not a farthing in my pocket." One of them accordingly approached, put his hand into the pocket of drowsy Nathan for money; but instead of a purse, they laid hold of, and drew forth a large knife, which they found covered with gore. Recovering from their surprise, and hoping to earn the reward to which the law entitles those who have delivered into the hands of justice a man under suspicion of murder, they awakened and bound him; and, deaf to his entreaties and protestations, conducted him to the nearest town, where he was cast into prison.

During the first month, his imprisonment became to him intolerably tedious. He asked the jailor whether he could not give him books to read? "There is," he replied, "in the whole house but one book, probably left behind by a former prisoner." "What book?" asked the Jew. "I do not know it," was the answer of the ignorant rude jailor. "I never have read it; but on looking into it, I have found, that it contains some historical accounts, and also several letters." "Oh!" cried the Jew, "give me that book; every book is preferable to tediousness." He gave it; it was the New Testament. He was about to return it; but said to himself,—"What harm can it do me, if for once with my own eyes I see what the Christians relate of their deified son of Mirjam? I shall thereby be enabled

to argue with Christians." He began reading; first with secret reluctance; but the longer he continued reading, reluctance merged into a tormenting alarm and distress of mind.

The sermons of Jesus contained in the Gospels, appeared to him so full of wisdom; his actions so supernatural; his views so pure; his sentiments so noble and so holy, that he felt himself struck with reverence, and was convinced, that not one of all men that have lived here on earth, not even Moses or Abraham, was comparable to him. From his early infancy he had heard his parents and teachers represent Jesus of Nazareth, as proud and quarrelsome, and, to his own people, a hostile innovator, rautineer, and impostor. He now was amazed to see before his sight, on every page, the humblest and meekest of all the sons of Abraham, nay, of all the children of Adam. He could not be satiated by reading the sermon on the mount, and his last conversation with his disciples, overflowing with the most tender parting love. With silent tears in his eyes he read the history of the passion and death of Jesus; but at his last words upon the cross, especially at that prayer, "Father, forgive them," he burst into tears and wept bitterly. He could scarcely prevail upon himself to proceed; but his desire to know the conduct of the disciples after the death of their master, induced him to go on to the Acts of the Apostles also. The events of the day of Pentecost, and the effects of the sermon of that day, struck him with peculiar power; but the conversion of Saul made the deepest impression upon his soul. This marvellous event operated decisively. He exclaimed, "As truly as the God of Abraham lives in heaven, Jesus of Nazareth is the Messiah, the Son of the living God!" In the same state of extacy he

lifted up his hands and prayed, "As truly as thou, O Jesus of Nazareth, art the true Prophet and Messiah, I will be thy disciple! Have mercy, upon me! Have mercy, as thou showest mercy to the thief at thy right hand! Pray for me, as thou prayedst for thy murderers.—Father, forgive him?"

This son of Abraham, now in his heart a believer, longed now with an increased desire after the day of his acquittal, of which, conscious of his innocence, he had not the least doubt. This desire was not so much owing to his natural love of liberty, as to a wish to confess publicly with the mouth, what he believed with his heart, and to be added, by baptism, to the followers of Jesus Christ. He spent his time every day in reading the New Testament, which now had become his invaluable treasure; he repeatedly perused it from the beginning to the end, with increasing interest and joy.

His trial for the murder at last took place. He defended himself with freeness, but modesty; even his judges confessed that his conduct bore testimony to his innocence; and the visible calmness of soul he showed when the bloody knife found in his pocket was produced, and his modest declaration on that occasion, staggered the judges. He was remanded to prison. As to the final issue, he was without fear, quietly waiting for the day, when God himself would be pleased to make his innocence manifest by some providential incident. After having been detained in prison for fifteen months, he received sentence, by which he was condemned to be whipped publicly before the town-hall, on three different days, and then to one year's hard labour in the citadel. A tear dropped from his eyes when the sentence was communicated to him, but he returned calmly and resigned into his prison.

Before the time of execution, an official message arrived from the court magistrates at P——, by which notice was given, that the real murderer of the old Jew had there been detected and brought into prison, and that he had already confessed his crime.

Our prisoner was sent back to prison, but shewed into a better room; and after the lapse of a week, he was restored to full liberty. The most respectable inhabitants of the town expressed their concern for his undeserved imprisonment, and their cordial sympathy in his release. He replied, "Your interest in my case affects my heart; but I cannot accept your compassion, for by my imprisonment I have lost but little, and gained infinitely. Soon after being set at liberty, he enquired after a pious minister of the gospel; the Rev. Mr. B. was recommended to him; to whom he opened his heart, and related to him all that he had experienced, and most earnestly entreated him to baptize, and admit him to the Lord's supper.

When the minister had thoroughly examined him, he wrote to his superior, "I have found him so profoundly informed of every truth of our religion, and at the same time so firmly convinced of its divinity, that I should deem it sinful to refuse him baptism." Some weeks afterwards he was publicly baptized in the parish Church, and received his Christian name, Christophilus, and was afterwards admitted to partake of the holy sacrament.

In the meantime, the real murderer being convicted on his own confession, was sentenced to be whipped on eight different days, and to six years hard labour in the citadel. While undergoing the latter part of this sentence, the young Jew, though he had suffered so much, felt no desire to

reproach or triumph over him. He was now a Christian, and Christian feelings dictated a different conduct. He followed the example of Joseph to his brethren, on perceiving that the Lord had so wonderfully made his afflictions the means of such great good. He resolved to return good for the evil intended.—He visited him frequently in his confinement—procured, by his exertions in his behalf, some mitigation in the rigour of his punishment, and a daily supply of better food for his comfort. But his principal desire was the salvation of his soul;—and he was honoured by success.—The poor criminal took ill, and was confined to bed.—Christophilus acted as his nurse, and left nothing undone which could tend to his comfort and recovery. But the welfare of his soul, was his chief concern. He instructed, he warned, he entreated; he solicited the sick man to think of his soul, and to turn with a penitent heart to him who pardoned and saved the murderer on the cross—His solicitations and prayers were effectual. It pleased the Lord, who receiveth sinners, to touch the hardened heart of the culprit. He sought for mercy, and found it. He melted away in tears of the deepest repentance, under a prayer, offered up by his benefactor; and prayed afterwards himself with affecting fervour and devotion. The Lord answered the supplication of the contrite sinner, and spoke peace to his soul. From that day he began to recover from his illness; and, after his restoration to health, and the termination of his punishment, both his countenance and his conduct bore testimony to the reality and sincerity of his conversion.

The young Jew having accompanied him to his wife and father-in-law,—continued to adorn the doctrine of Christ for several years, and died in con-

fidest hope of a blessed immortality through the true Messiah, Jesus Christ.

DESCRIPTION OF A
PILGRIMAGE ACROSS A DESERT.

As given by Ali Bey, in his Travels in Morocco, Tripoli, &c.

“ **W**E never kept the common road, but marched through the middle of the desert, to avoid some Arabs, whom we had seen. This country is entirely without water; not a tree is to be seen: not a rock which can offer a shelter or a shade. A transparent atmosphere; an intense sun, darting its beams upon our heads; a ground almost white, and commonly of a concave form like a burning-glass; slight breezes scorching like a flame. Such is a faithful picture of this district through which we were passing.

“ Every man we met with in this desert is looked upon as an enemy. Having discovered about noon a man in arms on horse-back, who kept at a certain distance, my thirteen Bedouéens united the moment they perceived him, darted like an arrow to overtake him, uttering loud cries, which they interrupted by expressions of contempt and derision, as, ‘*What are you seeking, my brother?*’ ‘*Where are you going my son?*’ As they made these exclamations, they kept playing with their guns over their heads. The discovered Bedouéen fled in the mountains, where it was impossible to follow him. We met no one else.

“ We had now neither eaten nor drank since the preceding day: our horses and other beasts were equally destitute, though ever since nine in the

evening we had been travelling rapidly. Shortly after noon we had not a drop of water remaining; and the men, as well as the poor animals, were worn out with fatigue. The mules stumbling repeatedly, required assistance to lift them up again, and to support their burden till they rose. This terrible exertion exhausted the little strength we had left. At two o'clock in the afternoon, a man dropped down stiff, and as if dead, from great fatigue and thirst. I stopped with three or four of my people, to assist him. The little wet which was left in one of the leathern budgets was squeezed out of it, and some drops of water poured into the poor man's mouth, but without effect. I now felt that my own strength was beginning to forsake me; and becoming very weak, I determined to mount on horseback, leaving the poor fellow behind. From this moment others of my caravan began to droop successively, and there was no possibility of giving them any assistance: they were abandoned to their unhappy destiny, as every one thought only of saving himself. Several mules, with their burdens, were left behind; and I found on my way, two of my trunks on the ground, without knowing what had become of the mules which had been carrying them, the drivers having forsaken them, as well as the care of my effects and my instruments.

“I looked upon this loss with the greatest indifference, as if they had not belonged to me, and pushed on. But my horse now began to tremble under me, and yet he was the strongest of the whole caravan. We proceeded in silent despair. When I endeavoured to encourage any one of the party to increase his pace, he answered me by looking steadily at me, and by putting his forefinger to his mouth, to indicate the great thirst with which he was affect-

ed. As I was reproaching our conducting-officers for their inattention, which had occasioned this want of water, they excused themselves by alleging the mutiny of the oudaias; 'and besides,' they added, 'do not we suffer like the rest?'

"Our fate was the more shocking, as every one of us was sensible of the impossibility of supporting the fatigue to the place where we were to meet with water again. At last, about four in the evening, I had my turn, and fell down with thirst and fatigue. Extended, without consciousness, on the ground, in the middle of the desert; left only with four or five men, one of whom had dropped at the same moment with myself, and all without any means of assisting me, because they knew not where to find water, and, if they had known it, had not strength to fetch it; I should have perished on the spot, if Providence, by a kind of miracle, had not preserved me.

"Half an hour had already elapsed since I had fallen senseless to the ground, (as I have since been told,) when, at some distance, a considerable caravan of more than two thousand souls was seen advancing. It was under the direction of a marebout, or saint, called Sidi Alarbi, who was sent by the sultan to Tremezan. Seeing us in this distressed situation, he ordered some skins of water to be thrown over us. After I had received several of them over my face and hands, I recovered my senses, opened my eyes, and looked around me, without being able to discern any body. At last however, I distinguished seven or eight sherifs and fakeers, who gave me their assistance, and shewed me much kindness. I endeavoured to speak to them, but an invincible knot in my throat seemed to hinder me; I could only make myself under-

stood by signs, and pointing to my mouth with my finger. They continued pouring water over my face, arms, and hands; at last I was able to swallow a small mouthful. This enabled me to ask, 'Who are you?' When they heard me speak, they expressed their joy, and answered me, 'Fear nothing; far from being robbers, we are your friends;'—and every one mentioned his name. They poured again over me a still greater quantity of water—gave me some to drink—filled some of my leathern bags, and left me in haste, as every minute spent by them in this place was precious to them, and could not be repaired.

"The attack of thirst is perceived all of a sudden, by an extreme aridity of the skin; the eyes appear to be bloody; the tongue and mouth, both inside and outside, are covered with a crust of the thickness of a crown-piece: the crust is of a dark colour, of an insipid taste, and of a consistence like the soft wax from the bee-hive. A faintness of languor takes away the power to move; a kind of knot in the throat and diaphragm, attended with great pain, interrupts respiration. Some wandering tears escape from the eyes, and, at last, the sufferer drops down to the earth, and in a few minutes loses all consciousness. These are the symptoms which I remarked in my unfortunate travellers, and which I experienced myself.

"My Bedoucens, and my faithful Salem, were gone in different directions to find out some water, and two hours afterwards returned, one after another, carrying along with them good or bad water as they had been able to find it. Every one presented me part of what he had brought. I was obliged to taste it, and drank twenty times; but as soon as I swallowed it my mouth became as dry as

before. At last I was not able to spit or to speak. I got with difficulty on my horse again, and we proceeded on our journey."

ANECDOTE OF A
HIGHLANDER'S DOG.

A SHEPHERD who inhabited one of those glens which intersect the Grampian mountains of Scotland, in one of his excursions to look after his flock, carried along with him a child of three years old. This is not an unusual practice among the Highlanders, who accustom their children from the earliest infancy to endure the rigours of the climate. After traversing his pastures for some time attended by his dog, the Shepherd found himself under the necessity of ascending a summit at some distance to have a more extensive view of his range. As the ascent was too fatiguing for the child, he left him on a small plain at the bottom, with strict injunctions not to stir from it till his return. Scarcely, however, had he gained the summit, when the horizon was darkened by one of those impenetrable mists which frequently descend so rapidly amidst the mountains as in the space of a few minutes almost to turn day into night. The anxious father instantly hastened back to find his child; but, owing to the great darkness and his own trepidation, he unfortunately missed his way in the descent. After a fruitless search of many hours, he discovered that he had reached the bottom of the valley, and was near his own cottage. To renew the search that night was equally fruitless and dangerous. He was therefore compelled to go home, although he had lost both his child and his dog, which had faithfully attended him for many years. Next morning, by break of day, the Shepherd, accompanied by a band of his neighbours, set out to seek the child; but after a day spent in fruitless fatigue, he was at last forced by the approach of night to descend from the mountain. On returning to his cottage he found that the dog which he had lost the day before, had been home, and on receiving a piece of oat cake had instantly gone off again. Struck with this singular circumstance, he remained at home the next day, and when, as before, the dog departed with his

piece of cake, he resolved to follow him, and find out the cause of this strange procedure. The dog made his way to a cataract at some distance from the spot where the Shepherd had left his child. The banks of the cataract, almost joined at the top, yet separated by an abyss of immense depth, presented that appearance which so often astonishes and appals the travellers who frequent the Grampian mountains. Down one of these rugged and almost perpendicular descents, the dog, without hesitation, began to make his way, and at last disappeared by entering a cave, the mouth of which was almost level with the torrent. The Shepherd with difficulty followed, but, on entering, what were his emotions when he beheld his infant eating with much satisfaction the cake which the dog had just brought to him; while the faithful animal stood by, eyeing his young charge with the utmost complacence! From the situation in which the child was found, it appeared that he had wandered to the brink of the precipice, and then either fallen or scrambled down till he reached the cave. The dog, by means of his scent, had traced him to the spot, and afterwards prevented him from starving by giving up to him his daily allowance. He seems never to have left the child day or night, except when it was necessary to go for food, and then he was always seen going at full speed to and from the cottage.

POETRY.

To Solitude.

YES, Solitude, thou hast unnumber'd charms
 For me. Dear to my heart thy silent hour,
 When, all resign'd to meditation's power,
 I calmly view the wild surrounding storms
 Of life—its joys, its sorrows, and alarms;
 Then turn mine eyes towards yon celestial bower
 Where pleasure blooms, an amaranthine flower,
 And no foul speck the lovely scene deforms.
 When youth and health delusive hopes inspire
 Of lasting happiness below the skies;
 Whene'er I feel the restless, fond desire
 Of earthly bliss, within my bosom rise;
 Ah, then be mine the hour of solitude,
 Far from the scenes which smile but to delude!