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# JUVENILE ENTERTAINER.

"Torquet ab obscænis jam nunc sermonibus aurem."

No. 31.

Pictou, N. S. Wednesday Morning, February 29, 1832.

Vol. 1.

## THE JUVENILE ENTERTAINER

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### CONDITIONS.

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All Letters and Communications must be post paid.

## BIOGRAPHY.

### The Progress of Genius

FROM OBSCURE AND LOW SITUATIONS, TO EMINENCE AND CELEBRITY.

Genius is that gift of God which learning cannot confer, which no disadvantages of birth or education can wholly obscure.

#### STUART, (JAMES)

The celebrated Architect, and commonly called the Athenian Stuart, was the son of a poor widow, to maintain whom, and the rest of the family, he (being the eldest son) was under the necessity of employing himself, when very young, in painting fans.

Having gone to Italy, he formed an intimacy with Mr Revett the Architect, with whom he went to Athens, where they made a number of drawings of the remains of ancient architecture. This ingenious man, on his return to England, was appointed surveyor of Greenwich Hospital.

## LITERATURE.

### OF THE NOURISHMENT AND GROWTH OF ANIMALS.

Let us proceed in the next place to survey new wonders. All the animals of the Creation, as well as the plants, have their original nourishment from these simple materials, earth and water. For all the animal beings which do not live upon other animals, or the produce of them, take some of the vegetables for their food; and thus the brutes of prey are originally indebted to the plants and herbs, i. e. to the earth for their support, and their drink is the watery element. That all flesh is grass, is true in the literal, as well as the metaphorical sense. Does the lion eat the flesh of the lamb? Doth the lamb suck the milk of the ewe? But the ewe is nourished by the grass of the field. Does the kite devour the chicken, & the chicken the little caterpillars, or insects of the spring? But these insects are ever feeding on the plants, and the green produces of the ground. The earth, moistened with water, is the common nurse of all: even the fishes of the sea are nourished with some green vegetables that spring up there, or by preying on lesser fishes which feed on these vegetables.

But let us give our meditations a loose on this

entertaining subject, and we shall find numerous instances of wonder in this scene of Divine contrivance.

What very different animals are nourished by the same vegetable food! The self-same herbage or fruits of the earth, by the divine laws of Nature and Providence, are converted into animated bodies of very distinct kinds. Could you imagine that half the fowls of the air as different as they are, from the crow to the titmouse, should derive their flesh and blood from the productions of the same tree where the swine watches under the boughs of it, and is nourished by the droppings of the fruit? Nor need I stay to take notice what numerous insects find their nests and their food all the summer season from the same apples or apricots, plumbs or cherries, which feed hogs and cows and a hundred small birds. Would you think that the black and the brindled kine, with the horses both grey and bay, should clothe themselves with their hairy skins, of so various colours, out of the same green pasture where the sheep feeds, and covers himself with his white and woolly fleece? And at the same time the goose is cropping part of the grass to nourish its own flesh, and to array itself with down and feathers. Strange and stupendous texture of the bodies of these creatures, that should convert the common green herbage of the field into their different nature and their more different clothing! But this leads me to another remark.

What exceeding great diversity is found in the several parts, limbs, and coverings, even of the same creature! An animated body is made up of flesh and blood, bones and membranes, long hollow tubes, with a variety of liquors contained in them, together with many strings and tendons, and a thousand other things which escape the naked sight, and for which anatomy has hardly found a name. Yet the very same food is, by the wondrous skill and appointment of the God of Nature, formed into all these amazing differences. Let us take an ox to pieces, and survey the wondrous composition. Besides the flesh of this huge living structure, and the bones on which it is built, what variety of tender coats and humours belong to that admirable organ the eye? How solid and hard are the teeth which grind the food? How firm the general ligaments that tie the joints of that creature together? What horny hoofs are his support, and with what different sort of horny weapons his Nature furnisheth his forehead? Yet they are all framed of the same grassy materials: The calf grazes upon the verdant pasture, and all its limbs and powers grow up out of the food to the size and firmness of an ox. Can it be supposed that all these corpuscles, of which the several inward and outward parts of the brute are composed, are actually found in their different and proper forms in the vegetable food? Does every spire of grass actually contain the specific parts of the horn and the hoof, the teeth and the tendons, the glands and membranes, the humours and coats of the eye, the liquids and solids, with all

their innumerable varieties in their proper distinct forms? This is a most unreasonable supposition and vain philosophy. No, it is the wisdom of the God of Nature that distributes the uniform food into the several parts of the animal by his appointed laws, and gives proper nourishment to each of them.

If the food of which one single animal partakes be never so various and different, yet the same laws of motion, which God has ordained in the animal world, convert them all to the same purposes of nourishment for that creature. Behold the little bee gathering its honey from a thousand flowers, and laying up the precious store for its winter food. Mark how the crow preys upon a carcass, anon it crops a cherry from the tree; and both are changed into the flesh and feathers of a crow. Observe the kine in the meadows feeding on a hundred variety of herbs and flowers, yet all the different parts of their bodies are nourished thereby in a proper manner: Every flower in the field is made use of to increase the flesh of the heifer, and to make beef for men: and out of all these varieties there is a noble milky juice flowing to the udder, which provides nourishment for young children.

So near a kin is man the lord of the creation, in respect of his body, to the brutes that are his slaves, that the very same food will compose the flesh of both of them, and make them grow up to their appointed stature. This is evident, beyond doubt in daily and everlasting experiments. The same bread corn which we eat at our tables will give rich support to sparrows and pigeons, to the turkey, and the duck, and all the fowls of the yard: The mouse steals it, and feeds on it in his dark retreatments, while the hog in the sty, and the horse in the manger, would be glad to partake. When the poor cottager has nursed up a couple of geese, the fox seizes one of them for the support of her cubs, and perches the table of the landlord is furnished with the other to regale his friends: Nor is it an uncommon thing to see the favourite lap dog fed out of the same bowl of milk which is prepared for the heir of a wealthy family, but which Nature had originally designed to nourish a calf. The same milky material will make calves, lap dogs, and human bodies.

How various are our dishes at the entertainment? how has luxury even tired itself in the inventions of meats and drinks in an excessive and endless variety? Yet when they pass into the common boiler of the stomach, and are carried thence through the intestines, there is a white juice strained out of the strange mixture called chyle, which from the lacteal vessels is conveyed into the blood, and by the laws of nature is converted into the same crimson liquor. This being distributed through all the body by the arteries, is further strained again through the proper vessels, and becomes the spring of nourishment to every different part of the animal. Thus the God of Nature has ordained, that how diverse soever our meats are, they shall first be reduced to a uniform milky liquid, that by new contri-

vances and Divine art it may be again diversified into flesh and bones, nerves and membranes. How conspicuous, and yet how admirable are the operations of Divine Wisdom in this single instance of nourishment! But it is no wonder that a God who could create such astonishing and exquisite pieces of machinery as plants and animals, could proscribe such laws to matter and motion as to nourish and preserve the individuals, as well as to propagate the species through all ages to the end of time.

### THE BOOK OF NATURE LAID OPEN.

#### INSECTS. Concluded.

Instead therefore of having the presumption to stigmatize in the most remote degree, this particular order of the creatures of the Almighty as affording evidences of imperfection, let us rather, from similar considerations, adopt the words of the more judicious SWAMMERDAM: "After an attentive examination" says he "of the nature and anatomy of the smallest as well as the largest animals, I cannot help allowing the least an equal, or perhaps a superior degree of dignity. If while we dissect with care the larger animals, we are filled with wonder at the elegant disposition of their parts, to what a height is our astonishment raised, when we discover all these parts arranged in the least in the same regular manner." And sum up the dispute in the words of another naturalist. "Of this dispute it is only necessary to observe, that the wisdom of the Creator is so conspicuous in all his works, and such surprising art is discovered in the mechanism of the body of every creature, that it is very difficult, if not impossible, to say where it is most, and where it is least to be observed."

It is impossible in the compass of a few pages to do any thing like justice to a subject, which can never be sufficiently investigated. I would however, consistent with my general plan, notice a few facts and striking peculiarities in this mysterious and numerous order of beings by which it is most distinguished from the others, and in which it will be sufficiently evident that insects are also the children of the same common parent, whose wisdom and goodness are so conspicuous in his other works.

In the head of an insect no organization of the brain is said to be discovered, but the want of this is abundantly made up by that medullary thread which communicates the vital principle to the other parts of their bodies, and endows them with that tenacity of life, which, as has been already observed, is so useful to the species. Neither are they apparently furnished with the usual organs of smelling and hearing, but whether the olfactory nerves communicate with the feelers, and the auricular organs are situated in the antennæ, as Mr. BARBERT supposes, or not, there can be no doubt from the readiness of Wasps, Flies, &c. to betake themselves to their wings and fly to dainties at a distance, and the alertness of Bees in sallying out to the relief of a brother in distress, when he alarms them by his noise outside the hive, that insects are not deficient in the senses of seeing and hearing, wherever the organs may be situated. The manner of respiration is different in insects from other animals; they breathe through pores placed in the sides of their bodies, and this also fits them for that remarkable peculiarity of living in separate parts. In the composition of insects no

bones are made use of, but this defect is supplied in some by a membranous or muscular skin, and in others by a crustaceous or horny covering. Their eyes are fixed, and they have no eyebrows, but to prevent them from injury the latter want is supplied by the external tunic of their eyes being hard and transparent, and to remedy the former some insects have four, some six, others eight, while the number of lenses in some of those who have only two is amazing indeed.

The eyes of insects are admirably adapted for seeing minute objects nigh at hand, but from the smallness and convexity of their lenses, it is apparent that they can neither see far nor take in the larger objects, and to remedy any inconvenience that might arise from this, may have been the principal reason why Nature has furnished them with those projecting horns or feelers with which they seem to grope as they advance. Insects are also distinguished by the number of their legs and wings; of the latter most insects have four wings, while no other species of animals have more than two; and although the greater part have six legs, others, as Mites and Spiders, have eight, and some ten, fourteen, sixteen, and even a great many more. The palpi are those little instruments fixed to the mouth of some insects, which seem to be intended to serve the purpose of arms, for they employ them to bring food to their mouths, and keep it steady when eating. Some insects are furnished with stings for defence, or to assist them in procuring their food, others with a tube for injecting their eggs into the most convenient situations for hatching; and the greater part of winged insects have a proboscis or trunk, which although not so large, is as wonderfully contrived as that of the Elephant, and serves the purposes of a mouth, a nose, and a windpipe!

The degree of strength and agility which many of the insect tribe possess is amazing.—A flea will draw a chain 100 times heavier than itself; and the velocity of a mite, in proportion to its size, is said to outstrip that of a race horse!—With regard to sex there is one thing very remarkable in this order, viz. that the Bees, the Wasps, and Ants furnish an example of a species that belong to neither sex; and so are called neuters;—these, however, are not without their uses; and the affection they evince for the helpless little creatures left to their care, might serve as a lesson to those who are intrusted with the tender charge of infants not their own.

The last thing I shall mention in this general survey of the insect tribes, is the wonderful transformation many of them undergo in the different stages of an egg, a grub or worm, a chrysalis, till they arrive at their most perfect or fly state; in each of which changes not only their form and structure, but their very nature and appetite undergo a complete revolution.—Take for example yonder Butterfly, which in gaudy attire, and with a sprightly air, roves and flutters in quest of its balmy juices from flower to flower: how wonderful the change from that dead and inanimate state in which its beauties lately lay concealed, or from the grovelling reptile which on the cabbage-leaf partook voraciously of its coarser fare, nor evinced any relish for other dainties!

If any thing were wanting to prove the wise disposition of the parts and appetites of animals to their various situations and habits, here we

have it in the instance of the Butterfly, whose structure and taste both undergo an alteration when its sphere of action and propensities become different.

In regard to some peculiarities of a few of the different species of insects, I would briefly observe, that in the mouth of the Gnat we have an admirable specimen of the instrument necessary for such a blood thirsty animal; the nails or crotchets of the Horse-fly, as well as its tenacity of life, evince that it is apt to be disturbed in its banquets; whoever attentively considers the form of a Louse, need not be told that it is a blood-sucker. The legs of the Locust and of the Grasshopper at once show their propensity to leaping.—The Bee, in danger of being robbed of its precious stores, is armed with its well-known weapon.—The female wasp is larger and stronger than the male, to enable her to survive the rigour of winter,—and the strong hairy legs of the Ant are no less well contrived to assist her in the indefatigable labours of the hill, than the two claws with which they are armed are for the purpose of climbing.

It is surprising the instinct by which these little creatures are taught uniformly to deposit their eggs on such animal or vegetable substances, as furnish a proper and plentiful supply of food for the worms or caterpillars, as soon as they are hatched. That those who pass into the Chrysalis or inactive state, select the most proper situations and modes of concealment; and that others, whose only metamorphosis consists in the addition of wings, surround themselves while undergoing the change by an envelope of spume or muck proceeding from their body.

"The Locusts have no king, yet go they forth all of them in bands;" while the solitary spider having no wings to go in pursuit of her prey weaveth to herself a web, and watches with patience the entanglement of the fly.—Time will not permit me to dwell on the geometrical precision and mathematical exactness, which Bees form their combs; the wonderful ingenuity and contrivance of the Wasp's nest, and the order and regularity observed in the construction of the Ant-hill, as well as the prudence and foresight which the whole of these evince in their labours and pursuits; these, and the singular but convenient attitude which the Water-bug assumes in swimming on his back, to enable him the better to lay hold of his food, the underside of plants which grow on the water, I can only mention, and must proceed to consider a few of the

#### USES OF INSECTS.

From the number of animals in the different elements and regions of existence, which prey upon insects, there can be no doubt but the principal object the Creator had in view in the formation of these, was for the subsistence of many of the larger orders of creatures; but the following specimens serve to shew that some of these also contribute in no small degree, in their respective spheres, to the service of man. By the labours and exertions of the Bee we are provided with stores of honey and wax;—the seemingly contemptible little SILK-WORM presents us, in its passage from the Caterpillar to the sleeping state, with materials for constituting our most costly raiment.—From the Cantharis come the Spanish Flies, so useful in blisters—the Kermet is also valuable for medicinal purposes.—and the

COCHINEAL furnishes us with a rich and beautiful dye.—The weavers accomplished by the united exertions of the Bees, the Wasps, and the Ants, show what can be done by brethren dwelling together in unity.—The watchfulness of the Spider after she has woven her web, demonstrates the necessity of not folding our hands for slumber just at the time we have completed our preparations for activity; and to the Ant the sluggard is sent to learn a lesson of prudence and foresight.

“ These emeralds, how little they are in our eyes!  
We tread them to dust, and a troop of them dies  
Without our regard or concern:  
Yet, as wise as we are, if we went to their school,  
There's many a sluggard, and many a fool,  
A lesson of wisdom might learn!”

Even the metamorphosis of insects, or the progressive change they undergo from an inferior to a more perfect order of being, ought not to pass before the eye of reason without its improvement — Does not this tend to remind us that here we have no continuing city, that this is not our place of abode; that when we lie down in our sleeping and inactive state in the dust, it is not there forever to remain, but that we may undergo a change, when this corruptible shall put on incorruption, and this mortal shall put on immortality; after which, with renovated powers, we shall burst the barriers of the tomb, and, in the strength of our Redeemer, ascend to a more exalted sphere, where, transformed into his glorious image, we shall be like him, for we shall see him even as he is; where all sorrow and sighing shall forever flee away, and Death be swallowed up in victory.

POETRY.

FIRE, AIR, EARTH, and SEA, praise ye the Lord  
DR. WATT'S LYRICS.

I.

Earth, thou great foot-stool of our God  
Who reigns on high; thou fruitful source  
Of all our raiment, life and food,  
Our house, our parent and nurse,  
Mighty stage of mortal scenes,  
Drest with strong and gay machines,  
Hung with golden lamps around,  
And flow'ry carpets spread the ground,  
Thou bulky globe, prodigious mass,  
That hangs unpillar'd in an empty space,  
While thy unwieldy weight rests on the feeble air,  
Teach that Almighty word that fix'd and holds thee there.

II.

Fire, thou swift herald of his face,  
Whose glorious rage at his command,  
Levels a palace with the sand,  
Lending the lofty spires in ruin with the base,  
The heav'nly flames that singe the air,  
Artillery of a jealous God.—  
Right arrows that his sounding quivers bear,  
To scatter deaths abroad  
Lightnings, adore the Sovereign arm that flings  
In vengeance, and your fires, upon the heads of Kings.

III.

Thou vital element, the air,  
Whose boundless magazines of breath  
Or fainting flame of life repair,  
And save the bubble, man, from the cold arms of death:  
And ye whose vital moisture yields  
Life's purple stream, and fresh supply  
Wet waters, wand'ring thro' the flow'ry fields,  
Or dropping from the sky;  
Unless the Power whose all-sufficient name,  
Needs your aid to build, or to support our frame.

IV.

Now the rude air, with noisy force

Beats up and swells the angry sea,  
They join to make our lives a prey,  
And sweep the sailor's hopes away.  
Vain hopes, to reach their kindred and the shores!  
Lo, the wild seas and surging waves,  
Gape hideous in a thousand graves;  
Be still ye floods, and know your bounds of sand,  
Ye storms adore your Master's hand,  
The winds are in his fist, the waves at his command.

V.

From the eternal emptiness,  
His fruitful word by secret springs  
Drew the whole harmony of things,  
That form this noble universe:  
Old Nothing knew his powerful hand,  
Scarce had he spoke his full command,  
Fire, Air, and Earth, and Sea, heard the creating call,  
And leapt from empty Nothing to this beautiful All,  
And still they dance, and still obey.  
The orders they received the Great Creation day.

THE ACCOMPLISHED YOUTH.

THE EMPLOYMENT OF TIME.

Redeeming your time from those dangerous wastes of it which lead our youth into every disorder and confusion in society, seek to fill it with employment which you may review with satisfaction. The acquisition of knowledge is one of the most honourable occupations of youth. The desire of it discovers a liberal mind, and is connected with many accomplishments and many virtues. But though your train of life should not lead to study, a course of education always furnishes proper employments to a well-disposed mind. Whatever you pursue, be enulous to excel. Generous ambition, and sensibility to praise, are, especially at your age, among the marks of virtue. Think not, that any affluence of fortune, or any elevation of rank, exempts you from the duties of application and industry. Industry is the law of our being; it is the demand of nature, of reason and of God. Remember always, that the years which now pass over your heads, leave permanent memories behind them. From your thoughtless minds they may escape; but they remain in the remembrance of God. They form an important part of the register of your life. They will hereafter bear testimony, either for or against you, at that day when, for all your actions, but particularly for the employments of youth, you must give an account to God. Whether your future course is destined to be long or short, after this manner it should commence; and, if it continue to be thus conducted, its conclusion, at what time soever it arrives will not be inglorious or unhappy. Blair.

MISCELLANY.

EXTRACT FROM THE MEHOMETAN STORY

(Of the Moon's dividing itself into two.

Now the champion proceeded in all his pride to the village of Hatijah,\* showing by his gestures that he cared for nobody, and that he was not disposed to treat any one with the least respect. When the champion approached the compound of Hatijah, she was amusing herself in the court-yard of her house. She saw a man on horseback, who seemed to wish to enter the enclosure; he appeared like a daring fellow, who felt not the least respect for any one. Hatijah entered the house, and addressed Muhammed, saying, “ O my patron, I have just seen a man of enormous size, who appears to care for nobody; he is mounted on a horse and wishes to enter our enclosure in all his pride.” Muhammed quickly went to the door of his house, to observe the actions of this champion. By this time the champion had reached the fence of the compound, and was seen by Muhammed whilst standing at the door. When his champion saw

\* Muhammed's first wife.

Muhammed, he instantly alighted from his horse and running to his Majesty Muhammed, prostrated himself at his feet. The prophet said, “ O champion, what is your business with me?” The champion replied, “ O my patron, I am sent by king Januwamalik to invite you to the plain of Abutahib.” His Majesty Muhammed said, “ O messenger, return to your king; I will come immediately.” The messenger then took leave and returned. At that instant Jibrail (Gabriel) brought an order to Muhammed to this effect: “ O Muhammed, go thou to king Januwamalik, and do whatever he requires of thee, that he may become a convert to the religion of the faithful.” Jibrail having delivered his message to Muhammed, God gave command to him and Michael, (Michael,) saying, “ Go both of you, and take all the angels with you down to the earth, to my beloved,\* who is about to proceed to the plain of Abutahib without any attendants; go, therefore, attend on my beloved, for it is for this reason, that I command you all to descend to the earth.” Now both Jibrail and Mikail descended, bringing with them seventy thousand angels, arrayed in all their robes; each one with his proper attributes, and beautiful in his appearance. Both Jibrail and Michael came to Muhammed and saluted him, and he returned their salutation. Jibrail and Mikail then said, “ O our patron, we are come at the command of God, with all the angels, in order to accompany our patron; this favour the Lord has bestowed upon our patron that he may have majesty and glory. O our patron, lift up your head, and see how great a favour the Lord conferred upon you.”

Muhammed raised his head and looked upwards, and beheld all the angels coming, arrayed in all their robes, each one with his proper attributes, and each one in his proper form. Jibrail then said, “ O Muhammed, it is proper that my patron should pray before he goes.” Muhammed prayed,—and when the prophet had concluded his prayer, he descended and proceeded, attended by Jibrail and Mikail, to the plain of Abutahib. Immediately the shouts and acclamations of the angels were heard, the sound of which was exceedingly loud and strong. Tidings were brought to king Januwamalik, and the people who were with him on the plain. The earth shook, and Januwamalik inquired of one of his ministers, saying, “ O my minister, what noise is this? it is as though the last day was come.” His minister replied, “ O my Lord, king of the world, Muhammed the orphan is coming, attended by all the angels. The eyes of all the people were now turned towards the high road; at the same time the sun was obscured, as by a cloud, owing to the multitude of angels which attended Muhammed, and, in an instant after, it shone bright again, just as though it had but newly risen. The prophet now made his appearance, and all who beheld him approaching the plain were greatly astonished, while the whole family of Hashim, namely, Abutahib, and others, went to receive him.

\* Muhammed.

† It is an article of belief among the Muhammedans, that the resurrection will be attended with an intolerable noise and confusion; hence the Malay writers, when wishing to describe a great uproar, the noise of a battle for instance, frequently use the phrase “ Seperti gkan kiyamat,” like the resurrection.

When king Januwamalik saw that Muhammed was come, he ordered a chair to be brought for him; and Muhammed, having reached the spot, sat down on the chair. The king then addressed him, saying, "O Muhammed, I have been informed by all the great and rich men of the city of Mekkah, that you have declared yourself the prophet of the last times, and the patron of all the prophets; but what miracles & signs are you able to produce, in proof of your being the prophet of the last times? Now, as to the prophet Noh, (Noah,) angels fled away with his ark into the air; this was his sign. The prophet Ibrahim (Abraham) was thrown into the fire by Namrud, (Nimrod,) but was not burnt; this was his sign. When the prophet Dauid (David) prayed, all the trees of the forest prostrated themselves with him; this was his sign. As to the prophet Soleiman, (Solomon,) his ring was his sign. And with respect to the prophet Iau, (Jesus,) dead bodies conversed with him; this was his sign. Thus all the former prophets had each one his peculiar sign, and miracle, whereby it was known that he had become a prophet; what therefore is your sign? all the great men of the city of Mekkah have told me, that Muhammed the orphan has declared himself the chief of all the prophets; where then is your sign? show it before us all; and if it be not as you say, I am prepared to disgrace you." Muhammed then addressed his majesty and all present, saying, "O gentlemen, have you not heard that I have certainly been raised above all the prophets, and that I am the consummation of all the prophets, and the chief of all the prophets, and that I am commissioned to establish the religion of the faithful, and to show great miracles, and that I am beloved of the true God?" King Januwamalik replied, "O Muhammed, it is at this time the request of all the great men in the city of Mekkah, that I should command you to call the moon to you, and if the moon come at your call, and at the same time pronounce to you the confession of faith with a loud voice, so that this whole multitude, and all my relations, both great and small, and of all ranks, may hear the voice of the moon; and if after the moon has pronounced the confession of faith you shall command it to enter the left sleeve of your garment, and come out at the right sleeve, and if then the moon shall divide itself into two parts, one part being towards the east, and the other towards the west, and afterwards the two parts shall meet again in the sky and the moon appear just as before, without the least defect;—if all these things shall come to pass according to our request to you, then all the great men on the plain will receive your religion, and confess that you are indeed the prophet of the last times."

*Remainder in our next Number.*

\* In a former part of the story, king Januwamalik says, "If he (Muhammed) can produce any miracle in support of his claims, we will all believe; but if not, I have ready the urine of camels and elephants, which I will order to be sprinkled on his head, after which, I will rub him over with charcoal." This was of course the disgrace intended.

## PHILOSOPHICAL REFLECTIONS.

### THE MOON.

O God supreme, we thank thee for the Sun,

Wondrous source of light and heat resplendent!  
For the pale Moon, that less reflected light,  
Whose silver beam do, often light our steps  
Through the dark empire of returning night;  
And sooth the mind to sweet tranquillity.  
In it a world we see, where mountains rise,  
And valleys sink, mere spots too often deem'd:  
Where, doubtless too, fit borings dwell, grateful  
To see the solar rays the Earth reflects,  
To cheer their long and lonely night.

This luminary, the sight of which diffuses such universal pleasure, may be considered a minor planet: its light proceeding from the sun, and being merely reflected to us from its surface. If it shined by a native light, it would not wax and wane; but, like the great source of light, appear always full. Its diameter is found to be about 2180 miles, and its distance from the earth 240,000 miles.

Like the planets it has its motions revolving round its own axis, and performing a monthly revolution round our planet, while the latter makes its annual journey round the sun. It is very remarkable, that its revolutions round its axis and the earth, are made precisely in the same space of time, so that its days and nights are few: a day and night there being equal to a month with us, consequently, but rather more than twelve of those days constitute its year.

In 27 days, 7 hours, and 43 minutes, it appears to travel through the twelve signs, which period is called a periodical month; but 29 days, 12 hours, and 44 minutes, elapse between one new moon and the next, which constitute the synodical month. If the earth, as was formerly believed, and as the unimproved now sometimes imagine, was stationary these distinctions would not exist; but as the earth is proceeding in its orbit, while the moon performs its journey, the latter will overtake the former in a more advanced part of its course as the minute hand of a watch does not cross the hour index, till it has described more than an entire revolution.

The solar rays cannot illuminate more than one half of the moon at the same time; of this illumination, different degrees are visible to us, according to its varying position with the sun and the earth. As it revolves round its axes in the same time in which it performs a revolution round our planet, it must always present nearly the same side to us. A white ball, suspended by a thread, and moved round a candle, would illustrate to our young friends the nature of the phases of the moon. If the ball be immediately between the observer and the light, its illuminated half will be towards the candle, and its dark side will represent the new moon; passing it gently on, the enlightened part will soon be seen, & exhibit the appearance of the moon in its first quarter; as it proceeds, still more of its illuminated face will be evident, till, when in a line with the beholder, on the opposite side of the candle, its whole face is light, and the full moon is illustrated; finishing the circuit, the half of which has already been made, the waning moon will be better understood. It is worthy of remark that the hemisphere of the moon facing the earth, can never be in darkness, being enlightened by the reflecting rays from our planet, when turned from the solar beams.

It deserves particular attention, that the moon, during the week in which she is full, about the time of harvest, rises sooner after setting than at any other period of the year in which she is in the same state, arising from her orbit lying

less oblique to the horizon at this season. August and September, the sun appears in the signs Virgo and Libra; consequently, when the moon is full, it must be in the opposite signs Pisces and Aries. There are, therefore, two full moons thus distinguished,—the one which the sun is in Virgo and Libra; the other which he is in Pisces and Aries; the latter is less remarkable than the former, and is called the hunter's moon. At the equator, when the seasons vary so little, and the weather is so uniform, this advantage is not needed, it is not granted. At the poles, the full moon is not seen in the summer; but in their winter they have her ways before and after the full, for fourteen our days and nights, without intermission: so evident, so infinitely kind is our omniscient Creator.

The mutual dependence of one part of creation on another, is an interesting improving consideration. The heavenly bodies, while they perform their revolutions in such ever enduring harmony, confine not their influences to themselves, but benefit each other. How universal is the efficacy of solar light! Nor are its dependent worlds without their reciprocal uses. The tides that diversify and refresh the sea, are greatly influenced by the moon's attraction. No one is so extravagant as to suppose the quantity of water on the globe is increased at every flow, and diminished at each ebbing of the sea; the changes, then, that we observe, must agreeably to some regulated actions in the waters: while, therefore, the waters rise at one part of the globe, they must be proportionally depressed at another. By the rotation of the earth on its axis, each part of its surface, which the moon is vertical, is presented to her in the day to its attraction; and hence the ebb and reflux of the sea twice occur. Altho' this influence is greatest where the moon is vertical, yet it is not confined to such space, but widely extended in a diminishing degree, according as the attraction is in a more oblique position. These tides vary in their time of return, and in their height, both at the same place and at different parts of the world, according as the moon is in various parts of its orbit, and nearer or further from the earth, owing to its elliptical orbit. Though these changes are principally effected by the moon, yet the sun also assists in the admirable operation, but, in its distance, in a far less degree. The great Newton found, that where the former raised the waters ten feet, the latter raised them only two. At new and full moon these influences are combined, and their height is twelve feet.

[To be concluded in our next.]

### ENIGMA.

On the glittering wings of the morn  
I arose from the deep rolling sea,  
The bright azure of heaven to adorn,  
And the early lark carolled to me.  
Amidst regions ethereal I strayed,  
While the sunbeams that gilded my robe  
Were chasing with smiles the deep shade,  
With which night had enveloped the globe.  
When the sun would in splendour arise  
O'er the valleys rejoicing and green,  
I spread a thin veil o'er the skies,  
And his brightness no longer was seen.  
Soon gloomy and dark I appeared,  
My voice echoed loud through the heaven.  
The traveller listened and feared,  
By my pitiless fury still driven.  
Then in tempest, I vanished away,  
To the ocean, wild place of my birth,  
What am I? Philosophers say,  
Ye men of renown upon earth!