THE HOROSCOPE,

A Monthly Magazine of Science and Literature.

MARCH, 1841.

We present our readers with two nativities, which cannot fail to prove interesting to the lovers of truth, who may desire to investigate the character of those perpetually-recurring *facts* which nature offers to confirm the doctrines of astral influence. The first is that of the child of an unhappy creature, who, having been deserted by the father of her child, was induced to put an end to its existence, which she accomplished by strangling it, and then casting it into a mill-dam, on the evening of the 21st day after its birth.

The second is that of a child of our own, who happened to be born the same morning, *within four hours of the same time* as that of the above child, and *in the same town*, and who died forty-two weeks after birth of a disease in the throat. Both children, it will be observed, had the Moon in Taurus (the sign which influences that organ), and excessively afflicted. But while one poor infant died a natural death, the other (who had the Sun and other planets which afflicted the Moon *angular*, which, according to Ptolemy, causes *violence* and *publicity*) came to an untimely end by the hand of its own mother!

As regards Ann Sherrington's infant, it will be seen that the Sun is rising into the Ascendant (and if the birth took place a short time later, which is very probable, becomes hyleg), being afflicted by the close conjunction of *both* Mars and Mercury, *and* the mundane square of Saturn. The Sun had the declination of Jupiter; who was, however, outnumbered by the malefics. The Moon, also, who has ever much influence on the constitution and destiny, was in a fixed sign, and in close opposition to Saturn, and received the zodiacal trine of three planets, the Sun, Mars, and Mercury, which aspects, from signs of short ascension, are, according to Ptolemy, equivalent in evil to a square. The Moon had also the *close* parallel of Saturn's declination; and, if the birth were only a few minutes later, Saturn was powerful in an angle, and was, at any rate, in mundane parallel to Herschel, and square to the Sun, Mars, and Mercury, and therefore excessively evil. Herschel also was in mundane parallel to the Moon, who could not, in fact, be more afflicted. We may here note that Ptolemy states (p. 117, Ashmand's translation), that if both Mars and Saturn afflict the Moon from angles, "they portend that the mother's life will be short or grievously afflicted." She was shortly after tried for her life, and sentenced to perpetual imprisonment!

NATIVITY OF THE SON OF ANN SHERRINGTON,

WHO STRANGLED HER CHILD ON THE 19TH OF JANUARY, 1836.*

This child was born at 6 A. M., 29th December, 1835, at Cheltenham.

AR 187° 22′.

RIGHT ASCENSIONS.		DECLINATIONS.
° ′		° ′
330 13	♅	12 57 S.
212 3	♄	10 27 S.
102 24	♃	23 1 N.
274 57	♂	24 10 S.
277 29	☉	23 17 S.
300 9	♀	22 6 S.
272 16	☿	24 46 S.
32 35	☽	10 50 N.

According to the rules of the ancients, as handed down from the ages anterior to the time of Ptolemy, by that great philosopher, we read, in his 10th chapter, Book II., that "should it happen that the rays of two malefics may nearly approach the places of the two luminaries, casting an injurious influence either on both or only one of them, no duration of life will be allotted to the child." And this is not judged by any *occult* or *mystic* action; but he continues, "for the supremacy of the power of the malefics extinguishes the influence favourable to human nature, and tending to prolong existence."

Speaking of the part of the body ruled by the signs and planets descending in the figure, Ptolemy distinctly tells us that the Moon rules the *throat;* and as Taurus also rules that part, and the *second* house, where Mercury, Mars, and the Sun are, also rules the same, we have ample evidence of the evil influence on that part of the body, and

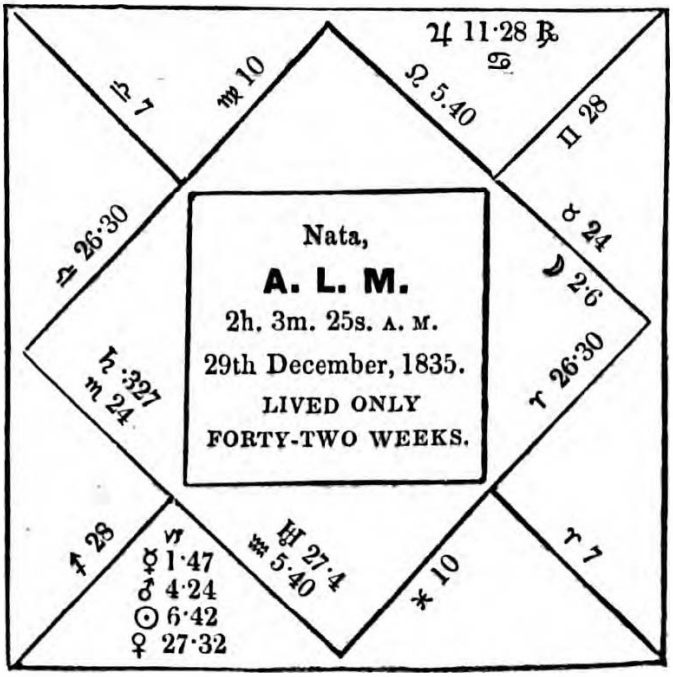
* "Mary Powell sworn: Is a midwife. On Monday night, December 28th last, was sent for. Was called up about the middle of the night, and prisoner was delivered of a boy *about* six o'clock the following morning."—Extract from report of the inquest, *Cheltenham Chronicle*, 28th January, 1836.

that, as the child was liable to die a *violent* death, it should be by strangulation. But this is directly, and without dispute, denoted in plain terms, beyond all quibble or mistake. "A *violent* or remarkable death will occur when both the malefics should attack either both the luminaries, or even only the Sun or Moon. In such a case, the evil character of the death will proceed from the concurrence of the malefic influence, and its magnitude or remarkable nature from the additional testimony of the luminaries." And as to the special description of death, it is written that, "if Saturn be in Virgo or Pisces, or *watery signs*, and configurated with the Moon, he will operate death by means of water, by *drowning* and *suffocation*." And also, "if it happen that Saturn be in *fixed* signs, and in quartile or opposition to the Sun, he will produce death by suffocation, occasioned either by multitudes of people, or by *hanging*, or by *strangulation*; so, likewise, should he be occidental, and the Moon be succedent to him, he will operate the same effects." Now, this child was partly *strangled* and then *drowned*.

The death occurring "by position," as astrologers term it, we have no right to expect *primary* directions to be completed; but we have no doubt that in these cases there will always be found extremely evil *secondary* positions, as was the case in this nativity. For at 6 p. m., 19th January, 1836, or twenty-one days twelve hours after birth, the Moon had arrived (by secondary motion) at 4° 45′ of Taurus, Saturn being at that time in 4° 43′ of Scorpio; therefore the death occurred *exactly* at the time the Moon reached the opposition of Saturn, by motion and ingress combined; and this evil star had at that time reached the declination of the Moon at birth—viz., 10° 48′.

Here follows the figure of birth of our daughter, who was born at 2h. 3m. 35s. a. m., 29th December, 1835, at Cheltenham, lat. 51° 51′ N., long. 1° 54′ W.

AR 128° 4′.



RIGHT ASCENSIONS.		DECLINATIONS.
330° 13′	☿	12° 57′ S.
212 2	♄	10 26 S.
102 25	♃	23 1 N.
274 49	♂	24 10 S.
277 18	☉	23 18 S.
299 56	♀	22 9 S.
271 58	☿	24 45 S.
30 47	☽	10 2 N.

This child had indifferent health for a few weeks, but was very well during the summer until September, 1836, when Saturn passed over the opposition of the Moon's place, and she was attacked by scarlet fever. On the 29th of September, Mercury, near the conjunction of Saturn, and partaking of his nature, came to the same opposition, and the child was taken seriously ill with *an abscess in the throat*, occasioned by not less than *six teeth* making simultaneous appearance. She suffered much, and wasted away until the 18th, when Mercury was *again* found in opposition to the Moon's place, while Mars was crossing the midheaven of the figure, the Sun crossing the ascendant, and the Moon (in opposition to Mars) transitting the square of the fatal place of Saturn, and the child died. The arc of direction of the Moon to the zodiacal parallel of Saturn, from which we had too much reason to anticipate great danger, measures 1° 26′, extending in time to one year and about three months. The effects *began* only to operate upon the weak constitution of this infant when the remarkably evil transits carried her off.

Now, the rule as to a *remarkable* death occurred; but the Sun and other planets afflicting the Moon (Saturn only excepted) not being *angular*, there was no "violence" attending it. It is observable, however, that the Moon afflicted by Saturn denoted serious and dangerous illness to the child's mother, which took place accordingly.

TO ASTROLOGY.

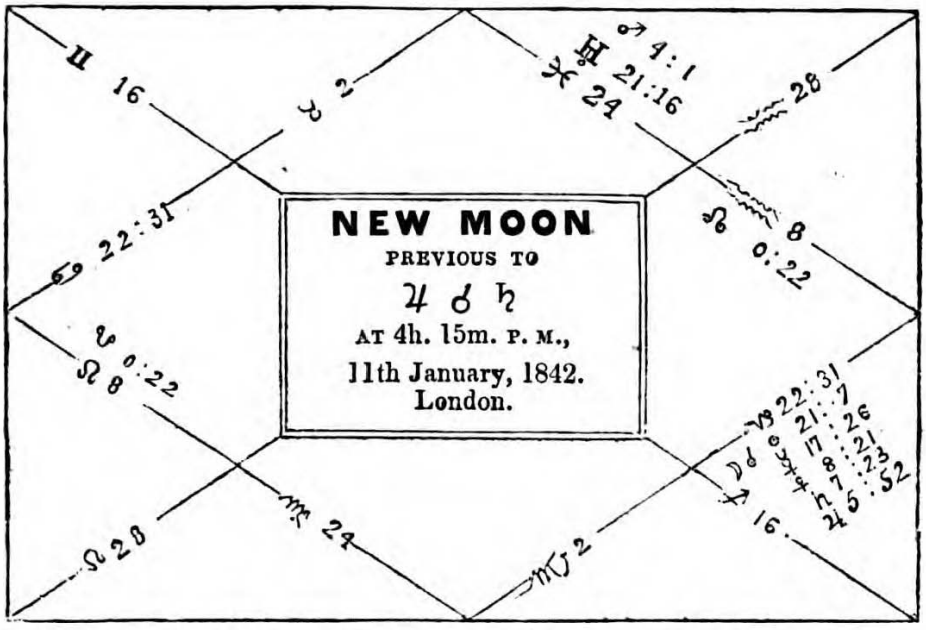
Hail! first-born science, eldest child of good!
That blessed mankind the earliest from the flood;
That taught each sage, who held superior sway
In old Chaldea, to calculate and pray;
That bade the sons of Egypt to be bold,
The truth and nature's mantle to unfold.
Sublime Astrology! the pride of man,
That aids a mortal god-like truths to scan;
Scoffed at by fools, who rashly thee condemn—
Incapable of thought, thou art too high for them;
Or basely practised, for the love of gain,
By other fools, who study thee in vain!

THE MUTATION INTO THE EARTHY TRIGON.

(Continued from page 15.)

In connexion with this sixth house, we shall introduce the figure of the previous lunation, or NEW MOON, antecedent to the MUTATION.

AR 354° 31′.



This is, without exception, one of the most remarkable figures it has been our lot to observe. The close collection of six planets in the sign Capricornus, and all falling in one house, will assuredly have a very powerful influence on the countries and places influenced by that sign, and upon the matters shown in whatever house they may be situate.

Here we find them affecting the *health* of the community; and, as this *satellitium* of six planets is found in a *tropical* sign, it "gives warning," to use the words of Ptolemy, "of changes in the atmosphere, and in political affairs." Now, as the 6th house influences health, we may expect diseases produced by atmospherical causes, and in all probability some epidemic originating (from those causes) in *India*, and spreading over the world, as did the cholera. The periods of intensity of such disease will be shown by the returns of great conjunctions, and other aspects of Jupiter and Saturn, during the influence of this mutation, which will extend over the next 240 years; also by eclipses of the Sun and Moon, to which the figure of the mutation will serve as a radix; for by the 51st aphorism of Ludovicus de Rigiis, we learn that "*Nullus effectus sive parvus á revolutione vel ab aliis significantibus erit, quod non primum á radice habeat exordium.*" And he adds, "*Quare summa diligentia radices considerandæ sunt.*"

The above was quoted by Wm. Lilly, and thus Englished:—"There is no effect or material accident, no matter though it seem small, which is signified either in a *revolution* or otherwise, which first of all had not

a *beginning* from some radix; therefore with great diligence the first *roots* or foundations of things are to be inquired into.

Now, in the lunation we find the luminaries conjoined on the place of Venus in the mutation; and as Venus rules the 9th house in the latter, which influences the ecclesiastical as well as the commercial powers of the nation, undoubtedly wondrous *changes* and *mutations* will soon take place in these things; and, *as regards the commerce of England, much of it will migrate to India*, and some of the ports of Britain will yield the palm to those of Hindostan. Thus much we read of these weighty matters.

Again, as the stars found in the 6th at the lunation are in the ascendant at the "great conjunction," we see a farther token that *the religion of the state will adopt a new phase, and the powers of Episcopacy pass away.* SIC TRANSIT GLORIA MUNDI! But the naval powers of the country will feel the effects of these numerous planets in the 6th house. The modes of naval warfare will undergo extreme mutations, and ere many years destruction will be hurled at the foes of this country upon the waves by means of instruments at present unknown; but these changes will be attended with much bloodshed and expenditure of treasure.

THE SEVENTH HOUSE.

This rules the public enemies of the country, and is the house of war and battle. It has also some influence over the dignity of the ruling powers and the credit of the government.

Many and woeful are the wars I foresee from this great conjunction. Yes, the bones of many an Englishman will bleach upon the arid sands of northern Africa; for one of the chief fields of blood will be the ancient Phazania, Nasamonitis, and Garamantica, embracing all the modern Libya, Tripoli, and Barbary.

The position of the Moon afflicted on the 7th surely denotes a multitude of enemies, and the gathering together of vast fleets to war against England. Among the van will be seen the star-speckled flag of the American and the blood-red streamer of the Egyptian;—yes, again and again will Egypt, America, and England struggle upon the waves which border the sands of Africa. But not alone upon the seas, not alone upon the burning soil of Africa, will the warlike men of Britain shed their blood and expend their treasure. The Sun, Moon, and four planets in Capricorn transitting the cusp of the house of war (in the lunation) denote the crash of armies, the onslaught of thousands upon thousands in the wide-spread fields, and by the broad rivers of Asia. There shall be seen in all Chorassan and Affghanistan, and throughout Baloochistan, from the Caspian Sea to the Bay of Bengal, myriads of martial men striking for life and liberty in many a blood-stained struggle, where the banners of England and the Scythian flag will wave in proud defiance. And the great and leading cause, or first inducement, of these Indian wars will be the oppression of the ruling powers upon the cultivators of the soil, the peaceful Hindoos; who, at length driven to resist the tyranny of their rulers, will find ready friends in the wily sons of the North, as shown by Mercury, the significator of the enemies of England, placed in Aquarius, the ruling sign of Russia!

NATIVITY OF THE PRINCESS ROYAL.

(Continued from page 8.)

The secondary directions in this nativity are of some importance in the months of March and April, 1841, as there are not only remarkable ingresses and transits of the heavenly bodies at hand, but the circumstance of the eclipse of the 6th of February, having Saturn exactly on the natal place of Venus, is worthy of consideration. There is no doubt this transit at the eclipse, and Mars being also within one degree of the Moon in this royal nativity, will weaken the native. And as there is a full Moon on the 7th of March, exactly on the radical Herschel, and in ill aspect to the radical Moon, there is a farther degree of weakness produced thereby. On the 19th of April the Moon reaches 6° 20′ of Scorpio, the semisquare of Saturn at birth. This aspect will not go by without some ill effect on the native's health; but before it is completed there are some very mischievous ingresses. By secondary directional motion the Moon arrives at 5° of Scorpio on the 10th of March; and on that day she is found to ingress (while in conjunction with Mars) upon that place, while Mars is *stationary* in 6° of the sign in semisquare to the radical Saturn, and sesquisquare to the *probable* radical ascendant, as we have heard that the birth took place about five minutes earlier than the time published, when 21° of Pisces were ascending. There are some evil transits about the 26th of February, when Mars ingresses upon the Moon's place in the secondary direction; and, looking to the lunation on the 7th of March, and the ingresses on the 10th, we confess that, if this were our own child, we should watch carefully for *inflammatory* symptoms, lest an attack of internal inflammation should place the infant in extreme danger.

When we remember that her Majesty has evil secondary directions in March, from which we have predicted "losses," (p. 82, Astrological Almanac), we must again express our hope that more than ordinary care of the royal infant's health will be taken at the periods abovenamed. The student in Astrology will perceive the cause of the failure of the first effort to vaccinate the Princess was the strong natural tendency to suffer small-pox, from the afflicting position of Mars at birth. It is certain that the failure could not have arisen from want of first-rate surgical skill, which had, moreover, "all appliances to boot."

THE ANTIQUITY OF ASTROLOGY DEMONSTRATED BY THE TERAPHIM.

Concerning the *Teraphim*, two things are especially to be inquired. *First.* What they were? *Secondly.* For what use? The word *Taraph* signifieth, in general, the *complete image of a man.* Michal took an IMAGE *(a Teraphim)*, and laid it in the bed."—1st Samuel, chap. xix., v. 13. More particularly it signifieth an *idol*, or *image made for men's private use in their own houses.* So that these images seem to have been their *Penates* or *Lares*, their *household gods.* "Wherefore hast thou stolen my *gods*, my *Teraphim?*"—Gen. xxxi. 30.

"And the man, Micah, had *an house of gods*, and made an *ephod* and *Teraphim*."—Judges xvii. 5. Because of the worship exhibited to these idols, hence from the Hebrew *Taraph*, or, as some read it, *Tharaph*, cometh the Greek *(Theraphein)* TO WORSHIP. The manner how these images were made is fondly conceited thus among the *Rabbies*:—"*They killed a man that was a first-born son, and wrung off his head, and seasoned it with salt and spices, and wrote upon a plate of gold the name of an unclean spirit, and put it under the head upon a wall, and lighted candles before it, and worshipped it.*"—R. Eliezer. With such Laban spake, say they. But, without controversy, the *Teraphim* which Michal put in the bed was a *complete statue or image of a man.*

The use of the *images* was to consult with them as *oracles* concerning things for the present unknown, or future to come. To this purpose they were made by *Astrologers* under certain constellations, capable of heavenly influences, whereby they were enabled to speak. "The *Teraphims have spoken vanity.*"—Zach. x. 2. And among other reasons why Rachel stole away her father's images, this is thought to be one, that Laban might not, by consulting with these images, discover what way Jacob took in his flight.—From THOMAS GODWYN'S *Ecclesiastical Rites used by the Ancient Hebrews*, 1628.

We have quoted this passage to satisfy the reader that Astrology *must* have been in existence soon after the flood, for Jacob fled from Laban about 600 years after that event; and we must suppose Astrology to have existed a very long period before, as it had arrived at such maturity as to enable the Astrologers, not only to know the various influences of the constellations, but to apply that knowledge practically to the electing fit "times" for the construction of the *Teraphim*, or images for *divining* by, so often mentioned in Scripture. According to Josephus, Laban said, in speaking of them, "those sacred paternal images which were worshipped by my *forefathers*, and have been honoured with the like worship which they paid them by myself." Wherefore they had been long in existence, and of course the *Astrologers*, who pointed out the *times* to make them, had existed already for many ages. This gives countenance to the declaration of Josephus, that SETH and other of Adam's sons "were the inventors of that peculiar sort of *wisdom* which is concerned with the heavenly bodies and their order."

THE PLANET HERSCHEL.

TO THE EDITOR OF THE HOROSCOPE.

FRIEND ZADKIEL,—You will, perhaps, be surprised at hearing again from me so soon, especially as no answer has yet been made to my last communication. But though no answer has appeared, it cannot be for want of time, at least on your part, as you had my letter more than a month before it was printed, and therefore you might very easily, out of the vast stores of evidence of my malignity which of course you possess, have made the refutation of my defence of myself appear contemporaneously with it, and might very appropriately have subjoined it at the end of my letter.

But you adopted a different plan, that of omitting some of my remarks;* not any very material ones, I confess, and inserting in the midst of mine some of your own, by way of contradicting or correcting my assertions. And it is upon these contradictions and corrections that I now claim to be heard: and, if I am not mistaken, I shall satisfy you that, by inserting them, you have neither helped your own cause nor injured mine.

The first arises from this passage:—"Mercury is not called a benefic by any of you, I believe. You say he takes his nature from his position; and you seem to consider yourselves at liberty to use him for a malefic when you want one, for you kill the Princess Charlotte with a parallel of his declination." To which you subjoin—"The nativity in this number shows this to be an error.—Ed." Shows what to be an error? My assertion that Mercury may be malefic? No; but merely the assertion, which I made from memory, that you kill her with a zodiacal parallel, whereas I ought to have said a mundane or rapt. parallel. What, then, was the force of your contradiction? But not only was there no force in it, because it did not touch the question of the malignity of Mercury, but this very nativity of the Princess to which you refer gives a confirmation under your own hand of the doctrine which I was imputing to you, for you therein explicitly aver that "Mercury is decidedly malefic by aspect."

Your next is in answer to—"The Moon is invariably, I believe, considered benefic." "Certainly not," say you. Will you have the goodness to produce me a single instance where a direction of a significator to the conjunction of the Moon—for that is the only way of testing the nature of a planet, as I told you before—has produced mischief, or a single authority for imputing malignity to the Moon? But, in truth, this is of very little consequence in considering the harmonious alternation of the planets, for the Sun and Moon ought, perhaps, not to be taken into account. But that does not affect the correctness of your correction.

For the purpose of showing that transits are not to be relied upon in opposition to directions, I mentioned the good transits operating on Lord Lyttleton's horoscope at the contest for the Cambridge High-Stewardship. I said, "He had Jupiter on the ascendant, in sextile to the Moon and trine to Mercury, Venus separating from the radical place of Jupiter and in sextile to Mars, attended with a most complete and unqualified defeat." You add, "Aye, but Mars in square to Saturn, Venus, and Mercury, and opposition to Herschel, extremely evil, was on the Medium Cœli and in conjunction with the Moon." No doubt it was. But let it be remembered, as it is not very evident from your way of stating it, that these aspects of Mars are not to planets in Lord Lyttleton's figure, but to those of the 11th of November, 1840. So that it simply stands, Mars, extremely evil, was on the Medium Cœli; and you may add, in square of Herschel and Jupiter. The conjunction of the Moon was eight degrees off; and *I* might also have added, the Moon in sextile to the Sun, though in opposition of Jupiter and Herschel, and Venus and Mercury in trine to the Sun, and the Sun itself nearer to the trine of the Moon than your Mars to the conjunction of the Moon. Pray, from this combination of transits, would you have predicted "a complete and unqualified defeat?" And if not, was not I right in saying that transits, however good, cannot neutralise the effects of bad directions?

Then comes your last and crowning interpolation. I said, all sextiles and trines were good, and all squares bad ("in spite of a theory invented to get over difficulties, that sextiles and trines of bad planets may be bad"). You very obligingly inform your readers what that theory is, or rather what you supposed I meant to allude to, and say, "A sextile in a sign of short ascension (which is a misprint for *long* ascension, of course) we find equal to a

* It is right that I should state that a very evident omission of something, to which the term "the Archdeacon before-mentioned" might refer, was my fault, and is not one of your omissions. I had found I was wrong in something I had said of him before, and accordingly struck it out, but forgot to alter the subsequent reference to him.

square in malevolence." I did not allude to that doctrine, but simply to what I stated; viz., that sextiles and trines of bad planets have on some particular occasions been assumed to be bad aspects. But, from your theory, it must follow that sextiles and trines of *good* planets are *bad*, when a sextile falls in a sign of short ascension, or a trine in one of long ascension. I do not find, either, that in your own published nativities you suffer yourself to be influenced by this theory. I will refer, especially, to the Queen's nativity in your Almanac for 1838, where the doctrine ought, on your own principles, to be applied to several important aspects, but is not applied once. Nor are any of your brethren much fonder of it in practice than yourself. And, indeed, I think you are all very wise; for, besides the consequences of it which I have already mentioned, there are objections to it of such number and extent as would well occupy a much longer paper than this to enumerate, and which, if you will assure me that you do seriously maintain this doctrine, I shall be happy to lay before you and your readers. For the benefit of those who may not know the full extent of the doctrines from your short notice of it, allow me to state that it is this:—Sextiles that are formed in signs of short ascension are to be reckoned as squares, and squares as trines. In signs of long ascension trines as squares, squares as sextiles, and sextiles as semi-squares. On this subject I will say no more at present.

And, in conclusion, I leave myself in the hands of your readers to determine whether I was wrong in saying that, by your contradictions, corrections, and interpolations, you have not done your own cause much good, or mine much harm. Yours faithfully,

THE PLANET ♅.

[We like to take time to decide on points of consequence. Our correspondent is too confident in his tone. We meant to imply that the aspect of Mercury *alone* did not kill the Princess. As to the Moon being "invariably" a benefic, we refer to p. 327, Wilson's Dictionary, where our correspondent will find that the ascension to the conjunction of the Moon causes "lunar diseases," and sometimes "threatens drowning." We agree that transits cannot overcome, though they may "neutralise," a bad direction; but we insist that on the 11th of November, 1840, Lord Lyttleton had Mars on his Medium Cœli, and the Sun in square to his radical Mars—quite enough to balance the effects of Jupiter. Therefore this is not a conclusive case. The questions of trines in short ascension, &c., is too important to be discussed incidentally.—Ed. Horoscope.]

MEDITATION ON DARKNESS.

The day's broad beams the human prospect bound
Within the precincts of a little mound;
But awful darkness rends the veil of light,
And vast *creation* bursts upon the sight.
Man looks abroad, beyond mere noontide skies,
And vision through ethereal mazes flies;
One blaze of glories meets his raptured gaze,
And all infinitude his *soul* surveys;
Here, beauteous worlds their circling course pursue—
There, suns, unfelt, effulgent rise to view;
While myriad orbs, by myriad orbs still crowned,
In life-diffusing radiance spread around,
Of countless modes of Being mark the trace,
Through all the dread magnificence of space.

Frances Barbara Burton.

ZODIACAL PHYSIOGNOMY AND PHRENOLOGY.

(Continued from page 25.)

IRELAND, &c.

These figures are the male and female portraits of the TAURUS person. In speaking of the sign Taurus, Lilly says, "It represents one of a short, but of a full, strong, and wel-set stature; a broad forehead, great eyes, big face, large strong shoulders, great mouth, and thick lips; gross hands, black rugged haire." In the writings of a modern author it is justly observed that "A portion of this sign is most fixed and determined, and it gives to some part of the persons born under it a saturnine coarseness, or *bull*-like obstinacy—a grossness and swarthiness of complexion, and headstrong perverseness; and an appearance somewhat like that of Hogarth's Idle Apprentice, when before the magistrate."

We usually perceive in persons born with this sign rising a stupid, heavy, loutish stamp of countenance; and what confirms the old doctrine of this being a "brutal sign," is that the natives, when enraged, are furious as the *bull*, and fearfully malicious. Dark Taurus persons have bushy, coarse hair, with a kind of tuft over the forehead, curling like that on the forehead of a *bull;* which animal they resemble still more forcibly in the character of the eye. The eye of a Taurus person is generally round, and shows some part of the white below the iris, especially when under the influence of anger. The lids are also generally above the ordinary size.

Ireland is found to be ruled chiefly by Taurus; and if the cut representing ARIES, which rules England (see page 22), be compared with that at the head of this article, the difference of physiognomy will be obvious.

In the Taurus natives the animal propensities abound, especially Amativeness and Destructiveness. The abuse of the former leads to

frequency of violence towards women, who are regarded in a very sensual light. Hence the numerous cases of abduction, &c., in Ireland. And there are no people who exhibit a more reckless and determined principle of Destructiveness than the Irish; whence we hear of the very common and very murderous cases of duelling among the higher classes; and to this, also, we may attribute the cold-blooded butcheries performed by the lower and uneducated people. When unprovoked, the Irish, like all Taurus persons, are fond and affectionate.

(To be continued.)

ASTRONOMY.—No. II.

If we now look abroad through the fields of space, we behold in all directions many countless millions of other shining stars, until the aching vision compels us to believe that their number is beyond all conception, and that their existence extends beyond the ken of all but Him, whose sovereign fiat bade them to take rank among the wonders of his creation.

> "So distant, says the sage, 'twere not absurd
> To doubt if beams, set out at nature's birth,
> Are yet arrived at this so distant world,
> Though nothing half so rapid as their flight.
> An eye of awe and wonder let me roll,
> And roll for ever! Who can satiate sight
> In such a scene? in such an ocean wide
> Of deep astonishment! where depth, height, breadth,
> Are lost in their extremes, and where to count
> The thick-sown glories in this field of fire,
> Perhaps a seraph's computation fails."

Almost the whole of the starry multitude will appear to us as *fixed* in their glorious abodes; full of light, but *calm and still*, blest with *eternal repose*. But the attention is very speedily arrested by *one* which seems to move. This, then, is a *planet*—the bright "*Mercurius, nearest to the central Sun*. The name "planet" has been given to distinguish it from the *fixed* or immoveable stars, the word signifying simply a *wanderer*.

Mercury appears as a very bright little spot, moving with astonishing velocity. Seen from the Sun, we perceive that he travels constantly onward from the right hand towards the left, at the rate of 110,000 miles in an hour, or about 1800 miles in one minute. By this means we perceive that he passes quite round the Sun in the time that this huge body makes three revolutions or rotations and a half on its own axis—that is, in 88 mundane days. In dimension this planet is extremely minute, his diameter being little more than 3000 miles; and, as the diameter of the Sun is 882,000, the contrast between them is very striking, the Sun's being 294 times that of the planet. The motion of this little active body is very curious. It forms nearly an

oval path, being sometimes *one-fifth* of its usual distance nearer or farther from the Sun. The mean or usual distance is about *thirty-six millions of miles.*

If we observe this planet's course, we shall perceive, not only that it maintains the same *direct* route, but that though it sometimes goes faster, sometimes slower than its usual pace of 110,000 miles an hour, it never deviates from one beaten track. It is always to be seen coursing along in a line with certain constellations, or collections of stars, as the word imports, and which constellations are comprised in a belt, or band, formed round the Sun's equator or middle. In this certain path we find Mercury for ever rolls on, with the wonderful degree of rapidity already mentioned. A most admirable degree of design and contrivance is to be met with in this little planetary body. Without going into *minutiæ*, we may mention, that as he rolls along he *rotates* on his axis in about twenty-four hours; so presenting a regular and rapid succession of light and darkness, day and night, to the beings who may dwell thereon, all of whom must enjoy these advantages. But as his distance from the Sun is not very great, when compared with other similar bodies, we find that he is enveloped in a very extensive atmosphere, the density of which softens down the powerful action of the Sun's rays, in the production of both light and heat. And there is reason to believe that the axis on which he rotates is so greatly inclined to his orbit, the path in which he moves, that the solar rays fall extremely *oblique* upon his surface, which tends also to mitigate their power.

While looking out from the Sun at this curious little wandering star, we are suddenly gratified by observing another such body arise above our solar horizon. This is the beautiful planet Venus. She is considerably larger than Mercury, being 7728 miles in diameter, more than double that of Mercury; but yet the Sun's is 114 times as great. The distance of Venus from the Sun is sixty-eight millions of miles; and she also revolves round the Sun, going steadily along at the average rate of 80,000 miles an hour. She completes her yearly period round him in the course of 225 days, or about seven months and a half. She, too, keeps within very narrow bounds, not deviating from that zone around the Sun's equator which is named the Zodiac. The deviation of a planet's orbit from a perfect circle is called the *eccentricity*, the word meaning *removed away from the centre;* for, as all the parts of the circumference of a circle are exactly equal in distance from the centre, so the *eccentricity* is the excess or deficiency in distance from the centre when we depart from the circle. The figure which Mercury forms is nearly an oval or egg shape; but Venus, though sometimes half a million of miles farther from the Sun than her mean distance, goes very little out of a perfect circle. But as she does not form an exact circle, nor yet an oval, we call the form of her orbit or pathway an ellipse. This figure has no centre, for no spot in it can be equally distant from its boundary, that being the quality of a circle only. But the spot which, in an ellipse, one part of the boundary approaches nearest to is termed its *focus.* The Sun's centre, then, is the focus of the ellipse, about which Venus and the other planets travel.

The length of the day in Venus is twenty-three hours and twenty-

one minutes, for in that time she rotates on her axis. And as her axis is not perpendicular to the plane of her orbit, but lies askant, or inclines at an angle of about twenty-three degrees from the perpendicular, she has four regular seasons, *spring*, *summer*, *autumn*, and *winter*, each season being about eight weeks long.

Venus is also provided with an extensive atmosphere and a canopy of clouds, through which the real face of the planet can be rarely seen; and these clouds, Sir John Herschel very reasonably concludes, "serve to mitigate the glare of her sunshine."

Thus we see the bounty of the Great Creator developing a paternal care for the comforts of those creatures which, unless we believe that he has provided all these beautiful designs and contrivances in idle vanity, we must conclude exist on this beautiful planet, to do honour to his adorable name.

The next planet we perceive beyond Venus is the EARTH. It seems, indeed, less brilliant than Venus, and moves less swiftly; but it is, in strict truth, rather larger, its diameter being 7926 miles, which is but 198 miles more than the diameter of the planet we have just been considering.

The distance which the Earth is from the Sun is ninety-five millions of miles. The orbit or pathway of this third planet, Earth, lies in the same belt or band of stars, or constellations, as do those of the other two planets. This said Zodiac will admit of a few words more being offered on its character. If we happen to be near the equator of the Sun, we shall see it extend all round us in that direction to which our view keeps continually extending by means of the Sun rotating on his axis from the right hand towards the left, if we face the south. This band contains twelve sundry constellations, or collections of stars, which were among the first remarkable phenomena of the heavens that were taken notice of by the inhabitants of that said little earth. The early astronomers among the Egyptians appear to have noticed these twelve constellations, which have been since called after the TWELVE SIGNS OF THE ZODIAC. These were, no doubt, named from certain effects found to result from each sign. It is a vulgar error to confound the *signs* of the Zodiac with the Zodiacal *constellations*.

We have mentioned that Venus is *sixty-eight millions of miles* from the Sun; and this particular number 68 will be remembered, if it be recollected that it is the same number as the rate of the Earth's hourly motion is expressed by. The Earth travels onward round the Sun at the rate of *sixty-eight thousand miles an hour*. It does not spin along quite so fast as Venus, at her 80,000, nor much more than half as fast as Mercury, at his 110,000 miles an hour; yet, considering that the old lady Earth has to drag the Moon along with her, a body two-thirds the diameter of Mercury, we must allow that she manages to bustle along at a very respectable rate. Her motion onwards in her orbit continues very regularly in the same line of direction through the Zodiac; and though that motion is imperceptible to her inhabitants, it is a fact that they are *hurried along* through space at the speed of 1135 miles every minute of their lives, which is just *nineteen* miles in one second of time!

If we would endeavour to form some notion of the inconceivable

rapidity of this motion, we may just consider a wheel, being one yard in circumference, turning round with great swiftness. Such a wheel turned round 60,000 times in a minute, or 1000 times in a second, would move *very slow indeed* compared with the motion of the Earth; for to equal this, it would require to be turned not less than 33,440 times in *one second*, that being the number of yards in nineteen miles. Now, it is quite impossible for the human mind to conceive any perfect idea of such a motion as this, for we have no organ of sight capable of conveying any idea of such velocity to our minds. But though men are clearly incapable, by their very constitution, of comprehending such a simple, common-place thing as a comparatively *slow* motion (for, compared with that of Mercury, it is very slow), a phenomenon in the midst of which they live, move, and have their being, yet they are so steeped in folly and imbecility, so lost to all feeling of their own littleness, so destitute of all humility, that they dare to dispute the possibility of any phenomenon which their narrow comprehension cannot grasp. How ought the wonders of creation, the vastness of the Sun, the swiftness of the motion of the Earth, the wondrous power which maintains these, and a thousand other marvels, to teach man humility, by demonstrating his own sad insignificance in the scale of wide creation? How ought these things to teach him the monstrous folly and rashness he commits when he ventures to denounce and to condemn his fellow-man for the mere exercise of his mental powers—for opinions?

While the Earth, with all its vast oceans and extensive continents, its mighty mountains and ancient edifices, its myriads of living beings, and thousand millions of inhabitants, flies *on, on, on,* through the wide field of space; at this wonderful degree of speed, it continues to spin round its own axis in twenty-four hours nearly, without the slightest perceptible degree of variation, for many thousand years. This motion of the Earth on its axis is completed exactly in twenty-three hours, fifty-six minutes, and four seconds. It has never varied in the least possible degree for a vast length of years, and is that by which the *Earth men* keep note of time, or to which they refer all other reckonings. This period of the Earth's rotation on its axis is termed the SIDEREAL DAY, so called from *Sidus*, a star. The term signifies a STAR-DAY—that is, the interval from the time any one star is seen on a certain meridian until, by the Earth's rotation, it is seen there again.

At present we must point our attention to a very curious and beautiful contrivance, by which the Great Creator has bounteously provided that the inhabitants of the Earth shall enjoy a variety in their seasons. If we observe the Earth, we shall perceive that its axis does not stand perpendicular to its orbit or pathway. If we were to draw a line through the centre of the Earth, and so divide it in two, just half way between the end of each pole, and then form a level or plane there, we should find the axis exactly perpendicular to that plane, which might be called the EQUATOR, because it would EQUATE or divide it in two *equal* parts. The axis, then, is always necessarily perpendicular to this equator. But if we were to closely examine things, we should find that if the Earth were cut through in *a line with her orbit*, it would not be through this equator, but the cut would go twenty-three and a

half degrees above it to the north, and the same distance below it to the south.

This is caused by the axis bending away from the perpendicular to the orbit, just twenty-three degrees and a half. And the result is, that by this means, and by the axis always pointing exactly in the *same direction* as to the distant fixed stars, we here in the Sun are always getting a new view of the face of the Earth, and of course each part of her surface derives the advantage of facing the Sun during her course round that body. The Earth's course round the Sun is completed in 365 days and a quarter, the length of an Earth year. During this mundane year the Earth forms an ellipse, less eccentric than Mercury, yet more so than Venus, the eccentricity being about one part in fifty-nine of the mean or average distance from the Sun.

According to this ratio, though the Earth be on an average very near to the distance of ninety-five millions of miles from the Sun, yet she is at times a million and a half nearer or further from that body.

ON SOLAR LIGHT.

When we speak of the *light of the Sun*, we in general conceive that peculiar condition of our atmosphere which attends the presence of the rays of the Sun's *emanation*, when it proceeds directly and without interruption from the Sun to the surface of the Earth. When that part of the surface on which an observer exists is turned from the Sun, we declare that *darkness* exists; but it will be admitted that this said darkness is not a substance, but merely a condition of our atmosphere; and as no one has hitherto declared darkness to be a substance, it being merely the *absence* of the effects produced by the solar emanation, may we not reasonably doubt whether the *presence* of the luminous effects of that emanation be evidence of there being any actual *substance* existing therein? May we not assume, by way of hypothesis, that the whole extent of space which surrounds the Sun, to a definite extent, exists necessarily, and in consequence of the mere existence of that luminous body, in a condition which we may, for want of a fitter term, express by the *radiant condition?* When we speak of the space which surrounds the Sun existing *necessarily* in the radiant condition, we must be understood to mean that such space does not, however, produce what me mean by the term *light*, unless some body, either solid, fluid, or gaseous, happen to meet with the solar emanation, and, by *reflecting* the rays of that emanation, produce that condition which we term *luminous.*

"When the Sun's rays are directed to an opaque body, the rays of light are reflected, but the rays of heat are absorbed and retained. * * The solar rays pass through transparent bodies *without heating them.* The atmosphere, for instance, receives no increase of heat by transmitting the Sun's rays, till those rays are reflected from other bodies."—*Hutton's Mathematical Dictionary.*

On this subject Scheele conceived that the Sun's rays of *light* pro-

duced heat not when in motion, but when stopped by the interposition of solid bodies. Mr. Melville adopted the same theory, and considered that reflection at an opaque surface was the cause of an excitation of heat from the Sun's rays. Now, our theory extends this principle to the excitation of luminosity, the Sun's emanation, in our opinion, having neither heat nor light (*i. e.*, luminous power) until these be excited by reflection, which causes electric *friction.*

We would farther explain our meaning by observing that the solar emanation must *impinge* upon some body and become *reflected* before it can produce the effects upon the eyes of animals, and the chemical effects which are attributed to what is termed solar light, that is to say, solar light, or *luminosity*, is a RESULT which ensues only when the solar emanation is *reflected* by some body, and becomes, in consequence, something different from what it was in its original and simple *radiant* condition.

De Luc, in his *Lettres Physiques*, considers that there is no emanation of any *luminous* corpuscles from the Sun, but supposes all space to be filled with an ether of great elasticity and small density; and that light consists of the vibrations of this ether, as sound consists of the vibrations of the air. But this explanation is defective, because there is no reason why the ether should not vibrate equally over that hemisphere of the Earth turned away from the Sun. In fact, if it account for light, it cannot account for darkness. Mr. Baden Powell, in his Report on Radiant Heat, states distinctly that light is now proved to consist of the undulations of the *elastic ether.* But we conceive that those undulations are rendered *luminous* by *electric friction.*

Now, to prove that the chemical effects of what is termed solar *light* and which we have described as the solar emanation AFTER reflection, or in the *luminous* condition, are peculiar and quite different from the same solar emanation BEFORE reflection, or in its *radiant* condition, we shall merely mention one or two instances of chemical action, which are, nevertheless, very decisive.

Before we come to these, however, we must quote Professor Powell's conclusion on the subject:—

"We are entitled to conclude (he observes) that there does not exist in the solar beam, in its natural state, any *simple radiant heat;* but that the whole emanation is distinguished by the two characteristics of affecting substances with heat in proportion to the *darkness* of their colour, and being wholly TRANSMISSIBLE through *glass* without heating it, and INSEPARABLE FROM THE RAYS OF LIGHT."

To this conclusion we submit that there should be added the same remark as to simple radiant *light* or luminosity, as otherwise it contradicts itself; for if there be radiant light (before the act of reflection), which is *luminous* when it emanates from the Sun, then either there must be also radiant heat, or the two things are not *inseparable.*

Ammonia and phosphorus disengage by the solar light (and by no other light) phosphorated hydrogen gas, and deposit a black powder; but they do not act upon each other in the dark. Here, then, we have an instance of chemical action when the solar emanation impinges upon these two bodies, thereby showing that an electrical action ac-

companies it, because all chemical action is accompanied by electrical currents. But it is also well known that *light*, or what we may for distinction term *luminosity*, acts most powerfully on the vegetable world. And not only will vegetables grow more or less healthy as they may be supplied with *luminosity*, but almost all the phenomena of vegetable physiology are traceable to the action of this peculiar condition of the atmosphere.

"As animals receive from oxygen a vivifying influence, which is indispensable to the preservation of vital motion, M. Dutrochet conceives he has proved by direct experiment that vegetables receive a similar vivifying influence from *light*."—*Westminster Review.*

M. de Candolle, in his work on Vegetable Physiology, attributes the contractility of the cells of vegetables, whereby they exude their juices, to what he terms "vital action," but which he states must be excited by heat, *light*, and other agents. What the other agents are we need not inquire, but we see that *light* and heat are found to act similarly; wherefore we may conclude that here, too, an electrical action is in existence. M. de Candolle says—

"The exhalation of water (which we must distinguish from simple evaporation) is effected in the foliaceous parts by the stomata—that is to say, by the orifices of the cuticle bordered by two cells. The exit of the water cannot be understood by merely physical laws, for capillarity would retain it, and hygroscopicity would only permit it when there was dryness in the air; but the contractile cells, which open and shut the orifice, *according as they are excited by the light*, cause the phenomenon."

But let us ask this philosopher whether this excitement of cellular tissue by solar *luminosity* be not a degree of *tension* of precisely the same nature as that observed among the filaments of the string of an electrical kite? To eject the fluid contained within the cells, the orifices contract, and we say that there must be, therefore, *tension* of the filaments which compose those cells; and what so obviously probable to cause this tension as the passage of an electrical current, which accompanies (and we conceive *produces)* solar luminosity?

Referring again to chemical action, we may observe that the action of the Sun's rays is not always alike, but varies according to the angles of refraction of the different colours of the primary elements of luminosity. It is known that the solar emanation, when it becomes *luminous* by being reflected, if viewed by the convex lenticular prism, exhibits the three original coloured rays of the spectrum, the *red*, the *yellow*, and the *blue*. These form, by their commixture, all the other shades of colour. But these have various degrees of refrangibility, the *red* least, the *blue* greatest. Now, the *red* rays produce no effect upon a solution of corrosive sublimate in ether, whilst the *blue* rays, as well as perfect light, effect upon it a mutual decomposition. Here we perceive that some of the solar rays produce more chemical action, and therefore excite more electricity than do others: whence we conclude that some rays must be positive when compared with the others, and of course these must be negative to the former. Now, without

following Mr. Kyan through all the evidence he adduces to prove that the *red* ray is identical with *positive* electricity, we think it may be concluded that the *red* ray is at least more endowed with positive electricity than is the *blue* ray. It may be well here to quote an observation or two of Mr. Kyan's in confirmation of this doctrine :—

"It is found (he states) that when the oxygen and hydrogen gases are ignited, they produce *much* heat, but *little* light. Why? Because nitrogen is absent. Present, therefore, to an ignited stream of these gases a piece of lime, being an alkalescent earth, and containing consequently nitrogen, and the most brilliant and perfect *terrestrial* light is formed, of an intense white and vivid brightness, and the nearest approximation yet achieved to *celestial* light, and divisable, like it, into the three prismatic colours, *red, yellow,* and *blue.*"

As a proof of the identity of the red ray with positive electricity, Mr. J. H. Abraham, of Sheffield, in trying some experiments on *lateral* discharges, and on the gradual and silent discharge of a battery or jar overflowing with positive electricity, obtained sparks seven inches long, of a beautiful, *vivid, rose-coloured light;* while Mr. Kyan observed from *negative* electricity the most beautiful light *green* colour, from a galvanic arrangement operating to produce a *magnetic rotary* power.

From these and other facts the conclusion may be safely drawn, that the *red* ray is positively electrical, and that the *blue* ray is negatively electrical.

It has been justly said, that oxygen and hydrogen are too coarse and ponderable to explain the phenomena of *light.* May we not, however, believe with De Luc, that there exists a more subtle fluid than even hydrogen, and one, nevertheless, capable of combining with and acting upon hydrogen and oxygen? And if this fluid really exist in space, may we not conclude that it is to its action we must attribute all the electrical phenomena of what we have observed in the operation of the solar emanation on vegetables and on chemical compounds? May we not, in like manner, look to the excitement of light, or rather the generation of *luminosity* by electric friction? And if this be probable (and we may even declare that it is a fact), then we shall not be deemed rash or speculative in saying that the *friction* occasioned by the solar emanation, in its natural *radiant* state, *striking against the Earth* in its motion of 1135 miles per second through space, is quite sufficient to explain the generation of that *luminosity* which ever attends those parts propelled forward in the direction of the solar emanation.

But to render more familiar this idea of the cause of that luminosity which attends those portions turned towards the Sun (and only those) of the bodies which revolve round the Sun, we will adduce a somewhat similar instance of luminosity caused by electric friction. It is well known that at certain periods the surface of the ocean becomes extremely brilliant, and every slight motion of bodies in the water at those times is succeeded by flashes of light, which it is now pretty well known are of an electrical nature. These phenomena are more frequently observable in southern, and especially in tropical climates. We have very frequently hung with boyish pleasure over the bow of a frigate in the Mediterranean to observe the bursts of luminosity from

beneath the cutwater of the ship, as she dashed along at the rate of ten miles an hour, amidst an apparent sea of fire. But we have observed that these electric scintillations are more frequently absent than otherwise; and we feel assured that their presence depends much on the peculiar electrical condition of the atmosphere at the time. When the air is highly charged with positive electricity, as shown by the existence of Auroræ and other electrical meteors, we have observed these luminous waves in the Channel; and on one occasion we remember a very splendid display in the river Mersey, very close to the town of Liverpool. It has been thought that the luminous condition of the waves arises from the presence of moluscous animalculæ. But even if this be the case, the same causes may be traced, for those creatures do not always present themselves to our observation; and it is precisely when the air is highly electrical, previously to a storm, that they become disturbed, as do all the animal creation.

In making this latter assertion, we may stir up the bile of some sceptical philosophers, who, because they have been wont to turn into ridicule old sayings on this subject, will scarcely bring themselves to listen to a word in defence of what they know must be old wives' tales; their *knowledge* on the subject being the fruit of sheer prejudice, and by no means the result of rational investigation. However, we believe that simple observation among the ancients carried them farther on the road to truth than the overweening pride of the moderns has permitted them to advance. Whenever a storm is about to burst upon us, there occurs an extensive excitement of the electricity of the atmosphere, which affects all animals, and renders them uneasy. In man this phenomenon is perceived, especially by the invalid; and those who suffer by old wounds, and even by corns or rheumatism, can generally determine when there is about to be such a change in the atmosphere. And the old observations are certainly correct, and to be accounted for in the same way as to the several noises made by various creatures, such as the crow, cock, goose, owl, peacock, swine, frogs, &c.; their crowing screaming, croaking, &c., argue no miraculous divining power, but merely the uneasiness they feel at the time when a powerful electrical current is passing from the air to the earth, or *vice versa*, and when their bodies become conductors, and every nerve is in a state of more than ordinary electrical tension. These ideas are not new, for Virgil says—

> Haud equidem credo, quia sit Divinitùs illis
> Ingenium, aut rerum fato Prudentia major;
> Verùm ubi Tempestas, &c. Vertuntur species animorum.
>
> *Georgic I.*

The same thing is, and has long been, observed in the remarkable stinging of flies, &c., and the skipping about of cattle, *indecorâ lasciviâ*, as Pliny terms it; also by the licking of their hoofs, hair, &c., and by birds picking and pruning their feathers, the oxen snuffing the air, the ant removing its eggs, of which indisputable instances may be quoted, before storms; and even to the house-cat washing her face with her paw. Now, the wise men of Gotham, who write books to misinstruct the rising generation, ridicule all these simple facts as superstitious observances, whereas they are merely and purely facts, as

devoid of superstition and as capable of being rationally accounted for —nay, more so, than is the rise or fall of the mercurial column in the barometer.

To return to the subject of the solar emanation: we do not by any means wish to imply that the electric friction which generates *luminosity* on the surface of the Earth, and other planets, is the only cause of the luminous condition of the solar light, for there can be little doubt that there is a continual current of electric matter circulating in the neighbourhood of the Sun's body; and we think it highly probable that by that means the necessary degree of luminosity is maintained for the service of the myriads of created beings whom we believe inhabit that glorious mass.

ZODIACAL LIGHT.

The zodiacal light is a conical or lenticular stream of light from the Sun, as its base, lying lengthways with its axis along the zodiac, and resembling, when best defined, that of the milky way.

This phenomenon was first particularly noticed, and named as above, by Dominique Cassini, in 1683, since which time many observations have been made on different parts of the Earth, on its length, width, and brightness. It seems to be best defined in clear weather, with a dry northerly or easterly wind, at the latter end of February and the beginning of March, when it appears almost as bright as the milky way; for then its axis forms a great angle with the horizon, consequently it is most distinctly seen. In general, however, it has a faint turbid appearance, not well defined, and terminates evanescently.

Here I have observed the zodiacal lights for many years past, during the first three months of the year, and sometimes to the beginning of May, as was the case last year, when it reached to the nebula *Præcepe*, in Cancer. The apparent angular distance of its vertex from the Sun has varied in a number of years' observations from 50° to nearly 100°, and the breadth of its base perpendicular to its axis in the horizon from 7° to 15°. It certainly has no other motion than that of the apparent motion of the Sun.

Although the Earth is nearest to the Sun at the beginning of January, yet the zodiacal light cannot then be seen so clearly and extensively as in February and March, because its axis forms so small an angle with the horizon. Places on or near the equator are the most favourable for observing it; but even in the latitude of any part of England it sometimes presents an interesting appearance.

It is still a question whether the zodiacal light is an extension of the Sun's atmosphere towards the orbit of the Earth, or a stream of light from a nebulosity about the Sun itself. The latter, perhaps, is the most probable conjecture when mathematically considered and investigated.

I first observed the zodiacal light this year in the evening of the 12th of January, from half-past six till eight o'clock, when it extended nearly to the Ram, with the planet Venus in the stream near the horizon. It again appeared in the evening of the 19th, from six till half-past eight

o'clock, about 50° south of the milky way, and reached to the neck of Aries, a distance of 90 degrees from the Sun. It also appeared in the evenings of the 20th and 24th, since which time the weather has not been favourable. The best time to see the zodiacal light is in the absence of the Moon, an hour and a quarter after sunset, in clear weather; and it may be easily traced along the southern side of the square of Pegasus, extending to Aries in January, to Taurus in February, to Gemini in March, and to Cancer in April.

J. H. MAVERLY.

Gosport, February 15th, 1841.

ON DIVIDING THE HEAVENS.*

Perfectly agreeing with "Scrutator," that it is of the utmost importance to be able to find the pole of any house or planet accurately, as it will make a very material difference in a zodiacal arc of direction, whether we use the method of Regiomontanus, advocated by "Scrutator," or the Placidian method (and one of them must be an error), we will, to the best of our abilities, demonstrate that the former is wrong, and that the Placidian method is correct.

If the heavens be divided in a correct manner, we shall learn how the Sun ought to rise to the cusp of any house by finding the oblique ascension of the Sun under the pole of that house, and subtracting from the oblique ascension so found the oblique ascension of the cusp of that house under its own pole. This ought to give the same distance as would be found by using the semi-arc of the Sun; and if it will not do so, it is manifestly in error. Now that the method of Regiomontanus will not do so, will be found demonstrated by the following calculations. The figure taken is for lat. 53° 48′. Given the right ascension of the meridian 355° 2′, and the place of the Sun ♌ 6° 1′, to find what number of degrees the Sun is distant from the cusp of the 12th house. First, by the method of Regiomontanus:—

Log sine of 60°	9·93753	log tan pole 12th 49° 48′	10·07308
+ log tan lat. 53° 48′	10·13555	+ tang. Sun's dec. 18° 48′	9·53202
log tan pole 12th house 49° 48′	10·07308	Sine of Sun's ascensional Diff. under pole of 12th house 23° 45′.	9·60510
AR meridian	355° 2′	Sun's right ascension	128° 25′
+ distance from meridian.	60 0	Sun's asc. difference	23 45
	415 2		
	— 360 0		
Oblique asc. of 12th house	55 2	Sun's oblique ascension under pole of 12th	104 40

* In reply to "Scrutator," in No. I, by J. Hirst, of Holbeck, near Leeds.

Sun's oblique ascension under pole of 12th...	104° 40′
Oblique ascension of 12th under its own pole..	55 2
Sun's distance from cusp of 12th.....	49 38

Thus giving an arc of direction by the method of Regiomontanus of 49° 38′.

The following is by the Placidian or Ptolemaic method, taking the declination of the Sun for the time the figure is erected, which we believe to be the true method (not taking 23° 28′), and from this *the pole can be found accurately.*

Sine of the ascensional difference of the 12th under its own pole 18° 29′.....	9·50110
Cotangent of the Sun's declination 18° 48′.....	10·46798
Tangent of the pole of the 12th house 42° 58′.....	9·96908
To this add tangent of Sun's declination 18° 48′.....	9.53202
Sine of Sun's asc. difference under pole of the 12th house 18° 29′.....	9 50110

Sun's right ascension.....	128° 25′
Sun's asc. difference under 12th pole.....	18 29
Oblique ascension of Sun under pole of 12th house	109 56
Oblique ascension of 12th under its own pole.....	55 2
Sun distant from cusp of the 12th.....	54 54

Thus there is a difference of 5° 16′ in those arcs, which would be an error of some importance in a nativity; and if the last method be correct, is fatal to the method of Regiomontanus altogether.

Now, to prove the correctness of the last method, take the semi-diurnal arc of the Sun, and work the same direction by it.

Sun's semi-diurnal arc in ☌ 6° 1′ in lat. 53° 48′ N. is 117° 43′.

Sun's right ascension.....	128° 25′
⅔ Sun's semi-diurnal arc.....	78 29
	49 56
	+ 360
	409 56
Right asc. meridian.....	355 2
Sun's dist. from cusp of 12th house.	54 54

Thus giving the same result as the Placidian method, which demonstrates its truth and the error of the other.

If "Scrutator" will look into the *Defectio Geniturarum* of Partridge, about the 32nd and 33d pages, he will find the subject of dividing the heavens ably examined, and the fallacy of the "rational way" shown. In Wilson's Dictionary, too, it and other methods of

constructing a *table of houses* are fairly examined. The best and readiest way of constructing a table of houses for any latitude is to find what degrees of the ecliptic are on the ascendant, then find the asc. difference of the ascendant under its pole, and make *two*-thirds of that asc. diff. the asc. diff. for the cusps of the 12th and 2nd houses, and *one*-third of it for the asc. diff. of the 11th and 3d houses, and from those ascensional differences so found ascertain what is to occupy the cusps of the houses.

It is hoped that, if there be any error or fallacy in the preceding, it will be pointed out, as truth is the only object of the writer.

ILLUSTRATIONS OF GEOLOGY.

Although geological information has been widely diffused during the last few years, it is probable that some of our readers may be unacquainted with the elementary principles of the science. A casual observation of some rocks, or the accidental discovery of a fossil, has often drawn the attention of an ingenious person to a consideration of the origin of one and the deposition of the other, and he has continued to speculate upon the imperfect foundation of his own knowledge, for want of an acquaintance with the observations and discoveries of others. Geology was once a purely speculative science; but during the last few years so much attention has been paid to the accumulation of facts in all parts of the world, that it would be impossible for us to give even an abstract of the science. But, for the assistance of those of our readers who are altogether ignorant of the subject, we will endeavour to explain and illustrate some of the most important principles, and trace the deductions which have been drawn from them.

In commencing the study of the composition and arrangement of the mineral masses of which the Earth is composed, the first fact which strikes our attention is, that there are various substances, and that they are placed in no constant relation to one another. There are not only beds of gravel, clay and sand, limestone, sandstone, and other substances, but they are found resting upon one another in all the various successions of which this series is capable. To the curious observer of nature in all districts, the greatest possible irregularity must appear to exist in the succession of the mineral masses. No person, confining his attention to the few miles which may be considered his own locality, could possibly come to any other conclusion than that the beds of earth or stone were lying upon each other in the greatest confusion, and would utterly despair of discovering any clue to an arrangement. In the extremely limited view of the geological constitution of the Earth which he had thus taken, he would be correct in forming this conclusion; but a more extensive examination has enabled scientific men to establish a classification of rocks, founded partly upon mineralogical characters, and partly upon the organic remains.

This leads us to remark, that nearly all rocks contain the remains of animals or vegetables—or, at least they are found in the greater number. But few persons are ignorant of this fact, for specimens may be seen in every museum; and there is now scarcely a town in England without a

public or private collection of specimens of natural history. As soon as we begin to minutely examine rocks, shells and other organic remains are found; and it is probably to this, and the love of collectin these relics of a former age, that we may attribute the almost universal interest now felt in geological pursuits.

Advancing one step further, we discover that one rock, or a series of rocks, is distinguished from another by its fossils; or, as geologists usually express the fact, every formation has its characteristic fossils. It must not be supposed from this that every bed of clay, sand, limestone, or other mineral, has a series of fossils peculiarly its own. The word *formation* is used in the expression of the fact, and to this it is restricted. A formation is a series of rocks supposed to have been produced at about the same period, and under the action of similar causes. Thus, for instance, geologists speak of a plastic clay formation, by which it might be supposed that a bed of some clay of a plastic nature was intended, but the term has a much wider signification. It is applied to a series of beds of clay and sand which are commonly numerous, and frequently of great thickness. That these varied deposits were produced at the same period, under a series of similar causes, is evident from their character, and not less from their position, as they lie one upon another conformably, to use a geological expression—that is to say, one has been evidently deposited on the other by regular subsidence; for they have the appearance of sedimentary masses deposited by the same sea or river, without the interruption of any disturbing cause. These formations are distinguished from each other by the fossils they contain. From this general illustration of geological formations it must not be supposed that they always consist of a great variety of beds, differing from each other in composition and mineralogical structure. The chalk formation, strictly speaking, comprises only the well-known mineral whose name it bears, and a bed of marl, called the chalk marl; while the term London clay formation in this country is confined to that thick deposit of clay upon which the metropolis is built, and known to be in some localities more than 900 feet in thickness.

To explain why these formations have fossils peculiar to themselves is not now a difficult task. But before we attempt to trace the state of the Earth at different geological periods, it will be desirable to take a general survey of the changes which are now in progress in all parts of the Earth's surface.

Every person, who has been in any degree attentive to physical phenomena, must know that there are many causes in operation which tend to alter the condition of the Earth's surface, and produce most striking changes. The effects are progressive and slow, and generally inappreciable within the life of an individual, except in those instances where violent causes are in action, such as whirlwinds, storms, floods, earthquakes, and volcanos. It is not to these that we must look for the origin of the most important changes on the surface of the Earth. The influence of violent agents is always local, generally confined to a small and comparatively unimportant district, usually more affecting life and property, by which indeed their power is commonly estimated, than the form and geological structure of the district. Violent storms and volcanic eruptions may in a few hours entirely change the external cha-

racter of a district, but their operations are confined both as to time and extent, and cannot be compared with the more slow and enduring influence of weaker but constant causes. It is to the constant action of water we trace the principal changes upon the surface of the Earth, for it is instrumental in breaking up the present combinations, and re-uniting in new states the component parts of all mineral masses. In rivers, lakes, and seas, deposits are in the constant process of formation; for the waters which run into them are all more or less charged with mineral matter, to which additions are made by the abrading action of rivers upon their banks, and seas on their coasts.

Let us now attempt to determine what is going on at the bottom of any of our rivers. According to the nature of the district, and the mineralogical composition of the rocks through which a river flows, so will be the deposit which it forms. If it flow through a bed of clay, and the country over which its tributary waters pass be of the same mineralogical structure, the re-formation in its bed will be the same. If, on the other hand, it be of sand, sand will be deposited. The mineralogical character of the deposit is thus accounted for in most cases; but if, by any cause, the bed of the river be left dry, and we examine the deposit, we find it to contain the remains of organised matter, such as the shells of fish, and perhaps the bones of aqueous or amphibious animals. If the water were fresh, we shall find the remains of fresh-water animals; and if salt, of marine animals. In temperate climes there will be the remains of animals living in temperate latitudes; and as the climate changes, becoming colder or hotter, the character of the animals will vary. Hence, then, it will be evident that, by the mineralogical characters and the organic remains, it is possible, by reasoning upon known principles, to ascertain the circumstances under which it was produced, and the character of the animals at that period in the history of earth.

If these facts be borne in mind, it will not be difficult to account for the occurrence of fossils in one formation which are not found in others —or, in other words, to find a reason for the difference observed in the organic remains of rocks. But it will be at once evident to the reader that a considerable acquaintance with natural history is necessary before a judgment can be ventured founded upon their characters. When a geologist is presented with the organic remains of any rock, he will first attempt to determine whether they existed in fresh or salt water, which a slight knowledge of Conchology will enable him to do. His next object will be to ascertain the temperature of the country or district at the time of deposition, which is to be done by an acquaintance with the localities of existent shells. It is thus, by inductive reasoning and acute observation, the geologist is enabled to describe the condition of the Earth, or rather of portions of it, at any era of that vast interval which passed between its creation and that of man.

That the value and accuracy of geological evidence may be more readily perceived, a few instances of its application may be mentioned— first, in relation to mineralogical structure, and then in regard to organic remains.

Suppose we meet with a bed of gravel, we should thus argue as to its formation. These fragments were once parts of large masses, and were probably broken from the parent rocks by the action of large bodies of

water in violent motion. But whatever may have been the agent which broke them severally from the rocks to which they belonged, they were certainly brought into this place by a stream of water, as they are, for the most part, far distant from those places where similar rocks appear at the surface, and many of them are rounded, as though they had been long under the attrition of moving water. Beneath this mass of gravel we may, perhaps, find a bed of clay, which, according to the evidence we have of similar formations, was no doubt produced beneath the surface of water by the accumulation and deposition of detritus. In another place may be found basalt, which, from the circumstances under which it occurs, as well as its similarity to some modern volcanic rocks, is believed to have been produced by igneous action.

Upon an examination of chalk, as it is developed in this country, a vast variety of fossils will be discovered, all of which are of such a character as leads the naturalist to assert that they lived in the deep sea, and hence it is concluded that chalk was formed in the ocean—a conclusion supported by its extensive development in this country and the continent of Europe. In the south-east of England some strata are found containing the bones of reptiles and other animals which have lived in a lake; and in the coal measures geologists have found the remains of ferns and other vegetables, which are natives of hot countries. From such evidence we deduce, not only the condition of a small district at the time of the formation of certain rocks, but also the climate, and other important particulars which assist in tracing the history of the Earth in the successive revolutions which have tended to the production of the present state.

(*To be continued.*)

ON THE PREVENTION OF ACCIDENTS ON RAILWAYS.

Englishmen, for ages past, have had some peculiar pet, which they have chosen to elevate into a kind of domestic demi-god, and which they have worshipped with an intensity of devotion truly admirable. *Our* young ideas were taught to glory in the well-fought fields of Cressy, Agincourt, and Poictiers. When we arrived at manhood, their fame dwindled before the dinning shouts of "Nile and Nelson!" "Wellington and Waterloo!" whilst during the last ten years Britons have sung Io Pæans to the sublime! the wonderful! the ever-to-be-remembered! inventions of railways and locomotive engines.

Now, railroads and locomotives *are* very well in their *way*, but there may be things of more consequence than the conveyance of John Nokes and Thomas Styles from London to Birmingham.

But the enthusiasm in favour of this rapid and regular means of motion has been not a little cooled by the occurrence of accidents of fatal character and result, in rapid succession, on most of the railroads.

Now, we put it to all men who are in a hurry—to all to whom death is no delight, for whom danger has no charms, and to whom the posthumous fame created by the leading journal's account of an "Inquest

on the sufferers," is a matter of dread and horror—and to the directors of railway companies—(delightful direction! to order sandwiches and sherry, and pocket a guinea once a week)—whether we shall not confer a mighty benefit on ye all, if we can succeed *in preventing accidents on railways?* We think we can; and, first—

OF ACCIDENTS OCCURRING FROM ONE TRAIN OF CARRIAGES COMING IN CONTACT WITH ANOTHER ON THE SAME LINE.

Soon after the occurrence of the tremendous accident on the South Western Railroad, the press awoke from its lethargy. The *Times* thundered out anathemas dread and dire against each and every direction, their agents, and servants; remedies were proposed and opposed; *voluntary* engineers and voluntary legislators contributed their assistance to confound confusion, really and truly believing that their crude imaginations could cure the evils of which they complained.

Ingenious some of the proposed remedies undoubtedly were, but, unfortunately, founded upon a total neglect of those principles which alone can counteract those antagonist principles which were the cause of the evils.

The accident occurred from the *neglect* of an individual *doing* something which he ought to have done. The proposed remedies required many more persons to *do* many more things. For instance, one proposition was *(first)*, that a policeman should note the time which had elapsed since the last train passed his station; *(secondly)* whenever he should see another train approaching; *(thirdly)* mark that time on a dumb dial; *(fourthly)* the engineer must look at the dial as he passes, and if the presumed propinquity of the preceding engine and train be too great, he must *(fifthly)* cut off his steam.

Now, here we have *five* things to be *done*, the neglect of any one of which would render the others nugatory; and it is evident that the chances of accident are in direct proportion to the number of *laches* which may occasion them. But this proposition has another evil. *It is no safeguard, in case the preceding train has met with an accident;* for, whatever time may have elapsed since the passing of a train, if it have broken down and be on the rail, the next train may run against it.

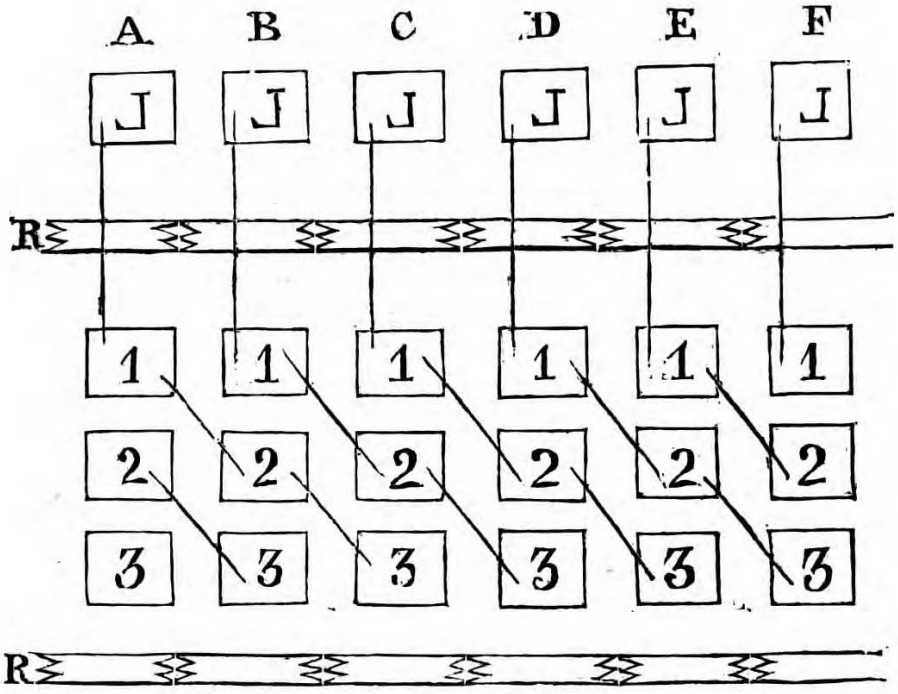
Another very ingenious proposition is, that at certain distances on each line of rail should be fixed some projection, against which some part of the engine should impinge as it passed that point, and thus pull a trigger, which should cut off the steam. The engineer's attention would be thus awakened, and he must *do* something, or his engine would stand still.

This is the right principle, but the adaptation is fallacious.

The trigger will be pulled periodically, and it will become a matter of course with the engineer to put on his steam every time it is turned off by the trigger; for it is not to be expected that a necessity for allowing the stoppage to continue will arise once in a hundred events.

But it is upon this ingenious device we propose to build our system of preventing accidents on railways, laying down as a first principle, that, *for one man who wrongfully places an obstruction, one hundred will wrongfully allow it to remain.* Our system, then, is to give notice of danger by the *absence* of a notice to the contrary.

It must first be determined what interval *(not of time)* of space should intervene between trains on the same line, in order that no accident may arise from concussion. This interval is evidently the greatest distance an engine and train will run by mere momentum, after the steam has been cut off. On the whole distance on both lines of road we have stations at such intervals.



In the annexed diagram we call the stations A, B, C, &c , calling the point of departure A, and the point of arrival F. At each station *within* the rails are firmly fixed, parallel to each other, three similar iron boxes, whose surface is level with the road. No. 1 contains an iron pinion, whose axis is vertical. Two racks work into this pinion—one of them works in the direction of the road, the other at right angles to it. On the upper end of the spindle, outside and visible, is a strong crank, with a short pin at the extremity. This crank must at present be considered to be at right angles to the road. No. 1 is nearest to the outside rail. No. 2 is similar to No. 1, except that it wants the outside crank, and that the two racks are parallel, being on opposite sides of the pinion. No. 3 has only one rack, in the direction of the road, and it has a crank outside the same, as No. 1, but which we must consider to be at present in the direction of the road. No. 2 is next in order to No. 1, and No. 3 is nearest to the inside rail.

On the outside of the rail at each station is a guide-post, with two arms, and surmounted with a lamp, lighted at night. One-half of the lamp is glazed, the other is dark. The arms are painted on one side black, on the other white. The post makes half a revolution on its centre, being placed in a socket which has at its foot a pinion half the diameter of the pinions of Nos. 1, 2, and 3. A rack works into this pinion, and is connected with the rack of No. 1, which is at right

angles with the road. It is evident, that if the projecting crank of No. 1 be turned 90 degrees, the lamp-post will turn half-round, and present a different face to the inspection of the passing train by night or day.

The rack of No. 1 at A is connected with the rack of No. 2 at B, and the other rack of No. 2 at B is connected with the rack of No. 3 at C, by means of iron rods underground, covered in by draining tiles or other means, and running on rollers.

It may be here mentioned, that the only reason why No. 2 is introduced is, that expansion may be allowed for, and thus prevent the cranks of Nos. 1 and 3 being out of their proper places. If the road curves, any number of *pairs* of No. 2 may be introduced.

It will be seen, then, that

No. 1 at A is connected with No. 3 at C
2 at B .. .. .. D
1 at C .. .. .. E

and so on to the end.

Now, each engine has underneath two projecting parts, one of which will come in contact with the crank of No. 1, so as to drive it 90 degrees round—that is, being at right angles with the road—before the engine approaches, it will be in the same direction as the road when the engine has passed, consequently the *post* outside makes half a revolution, and notice is given to the next engine that the one which went before is within dangerous limits. And by the action of the intermediate rods, the crank of No. 3 at the third station is brought at right angles with the road. When one engine arrives at *that* station, another projecting part forces the crank of No. 3 into its original position, and by means of the connecting rods, the crank of No. 1, two stations behind, is put into *its* original position, and the post also signalises safety to the next train; so that every engine-driver becomes aware at every station whether there is a train or not on the line for *two* distances—so it allows him full a distance to stop his engine, and he will still be without dangerous proximity. But the projection at the end of the crank No. 1 may serve for a "trigger" to impinge against, as the crank itself (if there be danger) will be in the direction of the road, and consequently the boss on the crank will then be a firm point against which the trigger will act; consequently the steam will be cut off, and the danger of the travellers being "cut off," from concussion at least, done away with.

CHANGES OF WEATHER, INDICATED BY TERRESTRIAL APPEARANCES.

In the year 1787, when the Prussian army entered Holland, under the command of the Duke of Brunswick, Quatremere Disjonval, an adjutant-general in the Dutch service, who had taken part against the stadtholder, in the commotions in the United Provinces, was thrown into prison. Here he remained till 1795, when he was released on the

arrival of General Pichegru at the head of a French army. During the seven years of his confinement, he had nothing to amuse him but the spiders in his prison, which he tamed. He had gathered about him a great number of these, of various species; and the observations he made on their manners and habits of life alleviated the irksomeness of his solitary hours. His observations on this subject he has arranged in order, and published in a little book, with the title of *Araneology*. These observations are in part new, and among other things confute the charge made against spiders that they devour one another. It is true, they do this sometimes, but it is only when they can procure no other food, and are driven to it by necessity. Thus Reaumur, a celebrated French naturalist, collected together a great number of spiders, in order to try whether their webs might not be applied to the purpose of manufactures as well as those of the silkworm. The spiders were so numerous, however, that they could not find a sufficient number of flies and other insects for their food, so that in a short time they were obliged to feed upon one another; and thus the hope of obtaining profit from their labours was frustrated. It is a fact, notwithstanding, that stockings of great fineness and warmth, and of considerable strength, have been manufactured from cobwebs.

But the most remarkable observation of our prisoner, M. Disjonval, was, that spiders are particularly excellent as prognosticators of changes in the weather, being more certain than the barometer, giving their indications a longer time beforehand, and having this advantage to the lower class of people, that they cost nothing.

On the common house-spider, for example, he has made the following remarks:—On the approach of fine weather, it peeps out its head, and stretches its legs out of its hole; and this the farther, the longer the fine weather will continue. Against bad weather it retires farther back; and against very tempestuous weather, it turns quite round, showing nothing but its hinder parts to the observer; thus acquainting him with the approaching change of the weather. At the commencement of fine weather, the web with which it surrounds its corner is but of moderate extent; if the fine weather will be lasting, it enlarges it two or three inches; and if it do this several times repeated, we may be certain that the weather will continue fine for some time.

On the 22d of July, 1795, M. Disjonval foretold, from the behaviour of his spiders, a fortnight beforehand, that the water of the Rhine would fall so as to render it passable by a bridge of boats; and in this manner it was actually passed.

In winter they are as certain prognosticators of approaching cold. If frost and snow be coming on, they either seize upon webs already made, in which case obstinate battles often ensue, or they make new ones, and labour diligently at them. Disjonval found, from several attentive observations, that, from the first of the spiders putting themselves in motion, to the setting in of the frost, nine days generally elapsed. We have a striking instance of the justness of this observation in the beginning of February, 1793. The weather was fine, warm, and not the least symptom of approaching frost. It might have been supposed, that fires would be no longer required; but on the 4th of February M. Disjonval announced, that a great alteration in the

weather would soon ensue, as, beside other remarks of a similar kind, he had seen three spiders' webs, one over another, in a place where there was not one on the preceding evening. On the 9th of February there was ice, and by the 13th all the canals were frozen over. It was now probable, that with the breaking up of this frost the winter would terminate. This was the opinion of M. Disjonval himself; and he felt no small satisfaction in having been able to foretell the freezing of the canals to a whole town, when such a circumstance was least expected. A complete thaw, in fact, came on; but on a sudden he observed, contrary to all expectation, a general bustle among his spiders on the last day of February. They ran backwards and forwards, began to spin webs diligently, and attacked one another. Hence he inferred that some remarkable change was taking place, and that very dry weather at least, if not very cold, would ensue. This conjecture he announced to the principal bookseller in the town, and through him to the public. Two days after it rained, which seemed no way favourable to his prognostications; and this rain continued for five days, so that the validity of his prediction appeared daily more questionable. Still, however, attentive to the proceedings of his spiders, he wrote every day to the same bookseller, telling him he continued firm in the persuasion of the approach of cold or dry weather. On the 8th of March it blew hard, on the 9th it snowed, and on the 10th the frost was so sharp, that all the canals were frozen over again.

The greatest and most striking instance of the importance of these observations, and the dependence that may be placed on predictions respecting the weather from them, is the conquest of Holland, by the French, in the winter of 1794-5. Disjonval's keeper was inclined to the patriotic party, and in consequence treated his prisoner with less strictness. Through his means Disjonval gave notice to the patriots, that a hard winter would ensue, which would render all the rivers and canals passable on the ice. The taking of the town by the French afforded him the only hope of being emancipated from his long imprisonment; it may be supposed, therefore, that he observed his spiders with the utmost care and attention. In the beginning of December he heard, to his great alarm, that the people talked of a capitulation, which would have annihilated his hopes at once. He used every means in his power to make known, that, from the operations of his spiders, a very severe frost would inevitably come on, and this within a fortnight at farthest. The people gave credit to his prediction, did not capitulate, and on the 29th of December the frost was so hard that the French were able to pass the Waal. The aristocratic party flattered themselves, notwithstanding, that the frost would soon break up, as on the 12th of January the water rose and was turbid, which was considered a certain indication of a thaw. Disjonval in the mean time wrote from his prison to the editor of the Utrecht Gazette, saying that, before three days had elapsed, a more severe cold than the former would take place. On this occasion the spiders proved incomparably better prophets than the turbid water; on the 14th of January the wind rose, on the 15th it froze, and on the 16th the French entered Utrecht, and the prisoner regained his liberty.

He continued carefully to observe the spiders he could find, in order

to give the French general fresh information, which was of great importance to him in this daring enterprise. On January 20, a sudden thaw came on. The general was alarmed for the fate of an army of a hundred thousand men, with a train of artillery, and began to think of a speedy retreat. But Disjonval had recourse to his spiders, and they foretold frost. He sent a couple of these little prophets to the French general; they were credited, their prophecies were fulfilled, and the French conquered Holland.

SCRIPTURAL METEOROLOGY AGREES WITH MODERN OBSERVATION.

"Fair weather cometh out of the *north*." Job xxxvii. 22.
"The *north* wind driveth away rain." Prov. xxv. 23.

These texts were penned at very different periods. The book of Job is believed to have been written about the year 2000 A.M., but Solomon lived about 3066 A.M., there being an interval of 1066 years; yet we find both writers, the Arabian and the King of Palestine, agree as to the fact in meteorology, that the *north* wind comes with fair weather. Now, we find in our own day and country that the *north* wind is *dry;* and, though cool, it certainly is attended with a high barometer, and a positive state of electricity in the atmosphere. According to the laws deduced from extended experiments by Kamtz and Dove, founded on observations made at Paris, four times a-day for 15 years, "the barometer rises by the north-west and *north* winds." And "the *humidity* of the atmosphere decreases relatively from the west wind, passing by the *north* to the east." Now, if the pressure increase, and the humidity decrease, there must be the "fair weather" spoken of in Scripture, and it is proved that in England, as well as Palestine and Arabia, the *north* wind "driveth away rain." It will be found that there is more true science in the Scriptures than some persons may imagine.

But it is an axiom with all the old astrologers, that JUPITER produces *north* winds and also "fair weather." We read in Lilly's Introduction (1647), that Jupiter "governeth the north wind," and also that "he usually produceth serenity, pleasant and healthful *north* winds." And as a recent proof of it, we refer to the conjunction of the Sun and *Jupiter* on the 21st of November, 1840. The curve of the barometer rose all over England from the 21st day, when its average was 29·56 to the 26th day, when it was 30·35, being a rise of 0·79 of an inch. Again, on the 3rd of December, when Mercury and *Jupiter* came to a parallel declination, the *mean* height of the barometer over 70,000 square miles, observed by 12 observers, including the Royal Society, was 30·38 inches. The places of observation were the eight given in the table at page 82 of this work, and four others at page 160 of the "Philosophical Magazine," for February, 1841.

We submit that here is evidence of the aspects of Jupiter bringing "fair weather." As to the *north* winds, we cannot offer the same clear

evidence; but in our own meteorological journal, from noon of the 18th to noon of the 25th of November, seven clear days, out of 24 observations there were 19 northerly winds, their mean velocity 10 miles per hour, and the mean velocity of the other five observations 12·5 miles. We trust that these *facts* will induce meteorologists to investigate and cast aside prejudice. If the solar light reflected from Jupiter (when in conjunction with the Sun) tend to produce *positive* electricity in the atmosphere, we may easily understand how it is that he brings "serenity and fair weather."

VEGETABLE WAX.

At a meeting of the Botanical Society of London, a paper was read by Mr. Daniel Cooper, the curator, on "*Vegetable Wax.*" In the first place it was shown that this substance occurs in those plants, and in those parts of plants, where the unscientific observer little expects to meet with it. The *bloom* on most fleshy fruits is one of the most familiar examples of a peculiar waxy exudation, the function it performs being that of repelling moisture or water in any shape whatever, when externally applied (the principle of *Endosmosis*, as laid down by Dutrochet), which would cause the fruit to burst from the engagement of fluid matter contained within the skin. It was next shown, that most flowers are covered with a delicate and thinly-spread coating of wax for the same purpose. The powdery grains of the stamens (*pollen*), so essential to the fertilization of the ovule, are likewise covered with wax on the same principle—as also are the leaves of the cabbage, kale, &c., and to which the *glaucous* appearance of the leaf is owing—in the latter instance the well-known property of repelling water is known to every one. Several species of *myrica* (gales, or Dutch myrtles) yield this substance in some quantity. A specimen was exhibited, obtained from the berries of four species, by Dr. F. Krauss, during his travels in Southern Africa, and according to Dr. Krauss, forty bushels of the berries thrown into boiling water yield about 40 pounds of wax, which is collected by skimming the surface, and by pressing the berries. In various parts of South America it is made into candles, which burn with a bright flame, giving off much light, little smoke, and an agreeable odour; the Hottentots eat it with their meals as bread.

The wax obtained from the wax-tree palm (*ceroscylon andicola*), which grows at an elevation of nearly 9000 feet on the mountains of Quindiu, in the Andes, is obtained by rasping the stem, and throwing the raspings into boiling water. Its melting point is rather higher than that of boiling water, consequently, although the wax separates from the impurities, it floats on the surface; it does not melt, as is the case with the former. It is collected in some quantity, and used for illumination in the countries where these trees abound.

That obtained from the milk of the cow tree of South Americ, and called and described by Dr. Thomson *galactia*, was noticed, as also the wax obtained from a kind of privet (*ligustrum lucidum*) of China.

REVIEWS AND NOTICES.

The Climate of England; or, a Guide to the Knowledge of the Atmospheric Phenomena of England, &c. By ORLANDO WHISTLECRAFT. pp. 236. London: Longman and Co.

The author of this work gives us very little to look for beyond its pages, as regards facts recorded anent the "climate of England." We are very well satisfied with the talent and industry displayed by the author in recording meteorological observations, and in the collating those made by others; but we could have wished that the work had been more strictly confined to these points. The desire to philosophise is too common now-a-days, and we can scarcely take up a letter on the most ordinary phenomenon inserted in a periodical, but we find the writer ready to account for every thing regarding Meteorology. We were much struck with this the other day in reading a letter in the last number of the Philosophical Magazine. The writer, speaking of the electricity observed in a jet of steam issuing from the boiler of a steam-engine, says, "I doubt not that it will eventually lead to some valuable discoveries relative to Meteorology and atmospherical electricity, subjects which have occupied much of my attention for more than forty years." We fear that these "forty years" must have been very uselessly occupied, as far as Meteorology goes. But to return to our author. The first chapter contains some clever remarks on the various states of season at the same time in different parts of England. We do not by any means agree, however, with the assertion that, "It is not at all unusual to find that, while one part of the island has a wet summer for the greater portion of the season, another part, at the same period, may be parched with drought and heat." This statement we have met before. It is an old acquaintance, but one with which we could never shake hands. Every attempt to find proof of its reality has failed us. Mr. Whistlecraft has given no evidence that bears out the assertion; and until that *be* given, it cannot be allowed to pass current. What we want is to see the barometric curves formed in these two different parts of England. If they agree, we must conclude that the general character of the weather agrees also, or otherwise the barometer becomes worse than useless. And we have never yet detected the fact of any important difference in the character of the barometric curves in England. In our last number we gave a column of *means* of the barometer in eight places, the northern of which is 392 miles in latitude from the most southern, and the eastern extreme is 178 miles from the western. Now, this comprises the immense area of 70,000 square miles, and yet there is no discrepancy between any of the curves—they all rise and fall simultaneously. We would not be understood to deny the effects of peculiar localities, or say that a particular geological structure may not retain a positive condition of electricity of the atmosphere in some places, and thereby prevent deposition long after it has begun a few miles off. But this is very different from the broad statement of our author, which we should suppose was taken from some newspaper, those vehicles being proverbially inaccurate in all matters of science.

The observations in the second chapter on Means of the Barometer and Thermometer will prove highly interesting to the general run of meteorological observers; though we do not ourselves esteem these things highly, as we fear they will never lead to any very useful results. There are some useful and practical remarks on "Instruments employed in the pursuits of Meteorological observations" in the third chapter, from which we quote the following :—

"In November, or during the winter months to March, if the thermometer varies but little day and night, and its average be found on each day to be about 42 degrees, it is a sure sign of much rain. If, also, in summer the barometer and thermometer fall simultaneously, there will be more continuance of wet than if the temperature keeps up, while the fall of pressure goes on. The rising of both instruments in summer will introduce the most serene and hottest period of the year."

The author states, that observers should have three or more thermometers in different situations, if they would arrive at proper conclusions. We agree that the Six's thermometer is indispensable, and that to ascertain the pressure and temperature are the most important points; but how to get the true temperature of the air is not so readily determined. If the thermometer be exposed to damp or moisture, there will be evaporation, and the temperature will be noted too low. On the other hand, if the instrument be connected with any building or object whatever, there will be radiation, and the temperature shown will be that of the object to which the thermometer is attached, and not that of the air. We shall take occasion to give our advice to observers at a future opportunity, as we shall frequently refer to this valuable work, which we cordially recommend to Meteorologists.

G. T. F. Smith's Annual Parliamentary Predictions, touching every Political "Crisis" of the Government during the Session of 1841. pp. 11. London: Sherwood and Co.

This brochure is clever, and likely to draw attention, as being eminently political, or, rather, relating only to political events, and to the success or reverses of the Government. The chief prediction is, that there will be "no dissolution of the Ministry during the session of 1841."

We should have been better pleased if the author had stated the mode by which he makes his predictions. Any thing that looks like secrecy smacks of *mystery;* and we fear the public will be reminded of *Murphy* and his *secret* in weather wisdom. Knowing that the author is a talented astrologer, we are sure that this is, on his part, a mere oversight.

Christian Phrenology, a Guide to Self-Knowledge. By Joseph Bunney. Second edition. A. Drewett and Co., 62, Regent-street.

This clever little work is founded on the best possible principles, and written with tact and talent. It develops the developments in a familiar style, and is well calculated to be a handbook for the young student in

phrenological science. The following ideas on the organ of "Prophecy," which we believe the author professes to have discovered, are at least novel, and we do not think them entirely unfounded; for undoubtedly some men are born with what old writers on astral science term a "divining soul."

"40. PROPHECY.—This organ lies between Conscientiousness, Hope, Caution, and Wonder. It produces a desire to compare the past with the future, and judge of what will be. It influences to a study of prophetic writings; and as the organ is actuated by Wonder, or a desire of truth, so is the prophet true or false; and as the animal, or moral and spiritual creature prevails, so will the person be dangerous or useful. St. Paul tells us, 'Despise not prophesying.'"

The Musician, a Magazine of Vocal and Instrumental Music, especially for Singers and Pianoforte Players. Edited by M. MECOVINO. London: Sherwood and Co.

This is a monthly magazine intended to spread a taste for music; but the editor goes a little into the philosophy of character, or rather of national character, and, after asking the question, "Are the English a musical people?" he proceeds to prove, or try to prove, that it must be answered in the affirmative. But he fails to satisfy even himself, for he admits that he depends "more upon the capacity of the English public for music, than upon any thing they have hitherto produced or appreciated." We fear that his search for evidence of the musical character of the English in the "harmonious constitution that we have inherited" will be equally unsuccessful. No, the English, as a nation, are not musical; they are warlike, imperious, and benevolent, but not musical—decidedly not. The "constitution" may be harmonious in theory, but it plays very rough music, we fear, in its union bastiles. The "Musician," however, will be a useful work if the editor will stick to his last—we mean his *ballads*, of which the February number contains a fair specimen.

Practical Observations on the Causes and Treatment of Curvatures of the Spine. By SAMUEL HARE, Surgeon. London: Simpkin, Marshall, and Co.

We received this work too late to permit us to do more than run over the pages hastily. This we regret, as the author writes the results of practical experience, which we decidedly prefer to fine-drawn theories, and we should have wished to offer our readers some account of its contents. We can do no more, however, than say that it has somewhat shaken our prejudices, which, we confess, were opposed to all mechanical contrivances for remedying the disease of which it treats. The observations on diet, and particularly those on *dress*, especially female dress, tight stays, &c., are excellent. We go even farther than the author, and would discard stays and ligatures entirely from females—at least, until they become mothers. In our next number we hope to give a further account of Mr. Hare's clever book; and in the mean time we counsel such of our readers as suffer, or who have friends who suffer from diseased spine, to procure this talented work.

MUTUAL AND LUNAR ASPECTS, &c., MARCH, 1841.

1st Day.

☽ ☌ ♃	8 23	A.M.
• □ ♅	0 32	P.M.
• SQ ♂	1 37	

2nd Day.

☽ ⚹ ♀	1 47	A.M.
☿ BQ ♂	4 7	
☽ □ ☿	4 39	
• in ♋	5 42	
• ☌ ♄	8 26	
• △ ♂	2 47	P.M.
☿ in ♈	7 15	

3rd Day.

☽ △ ☉	2 25	A.M.
• △ ♅	2 56	P.M.

4th Day.

☽ P ♄	3 1	A.M.
• P ♃	3 50	
• □ ♀	7 41	
♀ in ♉	9 51	
☿ □ ♄	10 34	
☽ △ ☿	10 42	
• SQ ♃	1 3	P.M.
• SQ ♅	3 52	
• in P.	4 0	
• □ ♂	5 11	

5th Day.

☽ SQ ♄	11 38	A.M.
• SQ ☿	1 12	P.M.
• △ ♃	1 57	
☉ Q ♄	2 9	
☽ P ♀	6 56	

6th Day.

☽ P ♂	6 8	A.M.
♀ △ ♄	9 26	
☽ SQ ☉	10 32	
• △ ♄	0 39	P.M.
• △ ♀	0 52	
• ⚹ ♂	7 15	

7th Day.

☽ ☌ ☉	1 36	A.M.
• P ☉	4 28	
• P ☿	9 40	
♅ in Aphel.	0 0	P.M.
☽ SQ ♀	3 59	
• □ ♃	4 31	
• P ♅	7 16	
• ☌ ♅	8 24	
• S □ ♂	8 39	

8th Day.

♀ SQ ♃	0 39	A.M.
☽ in ♎	0 7	P.M.
• □ ♄	3 29	
• P ☿	4 43	
• P ♅	5 16	
• P ☉	5 56	
• ☌ ☿	8 29	

9th Day.

☿ P ♅	3 39	A.M.
☉ P ☿	4 11	
☉ P ♅	5 15	
☉ □ ♃	9 49	
♀ S □ ♅	6 1	P.M.
☽ P ♂	7 14	
• ⚹ ♃	9 1	

10th Day.

♀ ☌ ♂	2 9	P.M.
☽ P ♀	5 55	
• ⚹ ♄	6 34	
☿ stat.	9 36	

11th Day.

☽ SQ ♃	0 19	A.M.
• SQ ♅	3 9	
• SQ ☉	3 30	
• ☌ ♀	3 39	
♀ in Per.	4 4	
☽ ☍ ♂	4 29	
♂ stat.	5 2	
☉ SQ ♂	6 41	

12th Day.

☽ S □ ♄	1 46	A.M.
• P ♄	2 45	
• P ♃	4 34	
• SQ ☿	7 9	
• △ ♅	7 28	

13th Day.

☽ △ ☿	11 44	A.M.

14th Day.

☽ △ ☉	10 3	A.M.
• ☍ ♃	3 45	P.M.
• □ ♅	6 41	
• S □ ♂	7 37	

15th Day.

☽ SQ ♀	8 15	A.M.
• □ ☉	2 19	P.M.
• ☍ ♄	6 42	
• □ ☿	9 4	

16th Day.

☽ ⚹ ♂	1 47	A.M.
• in ap.	11 0	
• △ ♀	0 56	P.M.
• in ♍	1 43	

17th Day.

☽ ⚹ ♅	7 46	A.M.
☿ P ♅	2 34	P.M.
☽ ⚹ ☉	8 39	
• P ♄	9 0	
• P ♃	9 9	
☿ □ ♄	10 47	P.M.

18th Day.

☽ ⚹ ☿	7 6	A.M.
• S □ ♃	11 13	
♂ SQ ♅	0 0	P.M.
♀ BQ ♃	1 58	
☽ □ ♂	2 4	
• S □ ♅	2 6	
• P ♀	5 19	

19th Day.

☽ S □ ☉	5 25	A.M.
• □ ♀	8 30	
• S □ ☿	11 8	
• S □ ♄	1 52	P.M.
• ⚹ ♃	4 57	

20th Day.

☽ P ♂	10 29	A.M.
☉ in ♈	6 28	P.M.
☽ ⚹ ♄	6 58	
☉ ☍ ☿	8 25	

21st Day.

☽ △ ♂	0 27	A.M.
• P ♅	3 55	P.M.
• ⚹ ♀	8 34	
• P ☿	11 25	

22nd Day.

☽ □ ♃	2 55	A.M.
☉ S □ ♀	3 16	
☽ SQ ♂	4 31	
• ☍ ♅	5 38	
• P ☉	0 17	P.M.
• P ☿	5 55	
• ☍ ☿	7 20	
• in ♈	10 19	

23rd Day.

☽ S □ ♀	2 13	A.M.
• P ☉	2 28	
• ☍ ☉	2 36	
• □ ♄	8 18	
☉ □ ♄	1 14	P.M.
♀ SQ ♄	8 52	

24th Day.

☉ P ☿	4 17	A.M.
☽ P ♂	6 16	
• △ ♃	9 41	

25th Day.

♃ P ♄	3 9	A.M.
☽ △ ♄	9 2	
• SQ ♃	0 17	P.M.
• ☌ ♂	0 38	
• S □ ♅	2 51	
☉ QX ♂	3 43	
☽ S □ ☿	10 54	

26th Day.

♀ QX ♃	7 44	A.M.
♂ S □ ♃	10 9	
☽ P ♀	10 34	
• SQ ♄	11 9	

☉ P ♃	1 7	P.M.	
☉ P ♄	1 7		
☉ ☌ ♀	2 46		
☉ S □ ☉	4 43		
☉ ✶ ♅	5 0		
☉ ✶ ☿	11 35		
27TH DAY.			
☽ ✶ ☉	8 1	A.M.	
♀ P ♄	8 55	P.M.	
♀ P ♃	9 42		
28TH DAY.			
♀ ✶ ♅	0 0	P.M.	
☽ SQ ♂	4 56		
☉ ☌ ♃	5 51		
☉ □ ♅	8 31		
☉ □ ☿	11 38		
29TH DAY.			
☽ in ♋	11 15	A.M.	
30TH DAY.			
☽ □ ☉	2 58	A.M.	
☿ ✶ ♀	11 26	P.M.	
☽ △ ♅	11 43		
31ST DAY.			
☽ △ ☿	2 17	A.M.	
☽ ✶ ♀	2 35		
☉ P ♅	3 1		
☽ P ♀	3 10		
☽ in Peri.	11 0		
☉ □ ♂	8 10	P.M.	
☉ SQ ♃	10 23		

ASTRO-METEOROLOGY AND THE WEATHER FOR MARCH.

The immense fall of the mercurial column from the 28th of December to the 4th of January, being at a *mean* (from Carlisle to Gosport, and from Thwaite to Hereford, including an area of 40,000 square miles), 1·5 inches, is the strongest possible evidence of the *causes* of that fall being of an *extensive* and *general* character. This extensive fall of the mercury in all parts proves also the correctness of our predictions at p. 34, of "high winds and severe snow-storms," &c., in the first week of the year. Nor have our predictions of "very tempestuous, dark, and cold about the full moon," in February, and the thaw on the 11th, been less correct all over the kingdom, from Falmouth, where the harbour was frozen, to Dublin and Dundee, &c. But we must also beg our readers to observe the "coincidence," as a newspaper penny-a-line philosopher would term it, of the "hurricane" in the Mediterranean on the 25th and 26th of January, when Admiral Hugon's squadron was dispersed, and rendered unfit for sea, and when "out of 32 vessels lying at Stora (coast of Algiers), 28 were thrown on the coast, and many lives lost;" we wish these facts to be compared, we say, with our prediction (p. 5, Astrological Almanac, 1841) of "gales very severe on the coast of Calabria," &c., on those two identical days.* The prejudices of the ignorant, and the still more stubborn prejudices of the learned, must soon give way to these facts, and then many a bold sailor will escape a watery death.

March begins rather mild and fair. 2nd, changes, cloudy, showers, and breezes. 4th, windy and rainy, squalls and misty air. 5th, fairer. 6th, showers, night cold, probably sleet; full moon fair, but cold air. 8th and 9th, fair and clear in general, yet frosty air, northerly winds, cumuli and meteors, or auroræ, the atmosphere being in a *positive* state of electricity. The 10th and 11th, more gloomy and stormy, fogs and snow or cold rains. 12th, raw, wintry air, probably keen easterly wind. 14th, fair. 15th, gloomy, and cold winds. 17th and 18th, stormy and gloomy—very cold winds. 19th, rather fairer. 20th, very unsettled, high winds easterly, low temperature, snow or sleety rain Cold and stormy weather prevails to the 23rd—nights very severe. 24th and 25th, fairer and milder. 26th and 27th, fine spring showers; seasonable weather; temperature higher, and barometer also. 29th, a change—windy. The month ends cold and frosty.

* The Marne was dashed to pieces, with the loss of five of its officers, four masters, and 44 seamen, in all 53 persons. * * Out of 31 merchant vessels anchored in the Bay of Stora, at 12 o'clock, on the 25th, when the storm commenced, 24 were completely lost in the course of a few hours."—*Times*, 17th Feb.

TABLE

SHOWING THE DAILY MEANS OF THE BAROMETER AND THERMOMETER,

FROM DECEMBER 22 1840, TO JANUARY 20, 1841.

The Sun in Capricornus.

☉ Long.	Day of the Month.	Carlisle.		Yarm.		Thetford.		Thwaite.		High Wycombe.		Canterbury.		London.		Gosport.		General Means.	
♑	Dec.	Bar.	Thr.	Bar.	Thr.	Bar.	Thr.	Bar.	Thr.	Bar.	Thr.	Bar.	Thr.	Bar.	Thr.	Bar.	Thr.	Bar.	Thr.
1°	22	30·31	30 0	30·50	30·7	30·00	30·	30·45	31·	30·18	29·5	29·84	29·2	30·20	30·	30·25	31·	30·21	30·1
2	23	·14	29·	·31	26·3	·17	28·	·27	29·	·04	26·	·64	27·8	·18	27·7	·13	31·	30·11	28·1
3	24	·29	29 4	·36	31·	·15	29·	·23	29·7	·03	30·	·65	27·	·18	30·5	·16	29·	·13	29·4
4	25	·41	37·7	·48	37·2	·35	28·1	·46	28·7	·23	27·	·87	21·8	·29	23·7	·36	25·	·30	28·4
5	26	·58	35·9	·65	33·3	·52	28·5	·61	29·5	·45	28·	30·08	27·8	·38	26·2	·61	29·5	·48	29·9
6	27	·62	38·7	·71	36·5	·57	31·	·71	30·5	·48	32·5	·12	31·7	·56	30·2	·60	31·	·57	32·7
7	28	·32	35·	·44	30·7	·35	29 2	·45	31·	·24	28·	29·89	26·8	·32	28·2	·36	30·5	·29	29·9
8	29	·32	35·6	·36	32·	·20	28·2	·33	25·5	·15	28·5	·77	28·9	·27	28·2	·32	32·	·21	29·8
9	30	·02	34·2	·42	33·	·22	28·3	·34	27·7	·20	27·5	·82	31·1	·12	28·5	·37	37·	·19	30·9
10	31	29·85	41·5	29·90	40·2	29·85	36·2	29·89	36·5	29·86	41·5	·44	40·4	29·95	38·7	30·00	40·	29·85	39·3
11	Jan. 1	·78	43·2	·89	44·2	·85	28·7	·94	37·	·85	43·	·45	42·2	·76	40·2	30·01	41·5	·81	40·
12	2	·72	38·6	·85	36·5	30·00	36·0	30·12	37·	·98	39·	·58	38·8	·06	38·3	·12	39·5	·80	37·9
13	3	28·84	33·2	·05	33·4	29.15	32·7	29·21	35·	·08	35·	28·71	34·7	·20	33·4	29·29	35·	·07	34·
14	4	29·37	33·1	·32	34·	·14	31·2	·18	30·	28·98	27·	·61	31·2	·25	29·	·13	33·5	·12	31·1
15	5	·60	31·2	·62	29·7	·34	30·5	·37	29·7	29·29	29·	·84	32·2	·38	31·	·41	32·	·35	30·6
16	6	·64	26·6	·72	25·2	·55	22·0	·68	22·5	·45	22·	29·10	29·	·45	26·2	·57	27·	·14	27·5
17	7	·63	13·	·76	11·6	·69	15·	·83	19·7	·61	11·	·25	24·2	·66	18·5	·74	25·	·64	17·2
18	8	·69	27·1	·85	17·	·80	9 5	·98	12·5	·75	7·	·39	21·2	·65	14·5	·89	26·	·75	16·8
19	9	·14	27·2	·43	24·	·58	21·	·71	16·5	·44	23·	·18	24·8	·16	20·5	·59	32·5	·40	23·7
20	10	28·96	31·2	·24	27·7	·19	30·7	·29	28·7	·10	33·	28·74	35·2	28·98	33·	·17	35·	·08	29·9
21	11	·97	29·7	·06	32·5	·00	31·5	·04	32·	28·81	34·	·49	36·4	29·26	34·2	·03	35·	28·95	33·1
22	12	29·32	32·1	·39	31·	·37	31·5	·48	31·7	29·43	33·	29·00	35·7	·38	33·5	·57	36·	29·37	33·1
23	13	·44	32·2	·50	29 5	·45	32·	·53	31·5	·32	31·	28·94	35·2	·39	32·2	·37	36·5	·36	32·7
24	14	·49	28·6	·56	30·	·35	33·6	·42	33·5	·18	34·	·80	35·8	·48	34·2	·20	36·	·18	33·2
25	15	·62	26·7	·74	37·5	·60	33·2	·73	34·	·55	33·	29·17	34·7	·52	35·	·65	40·5	·20	34·3
26	16	·11	38·5	·46	39·7	·55	39·5	·64	37·5	·39	41·	·10	44·8	·24	41.5	·50	50·5	·37	45·2
27	17	·37	42·	·43	44·2	·60	44·5	·67	41·5	·55	48·	·22	50·5	·36	48.2	·69	48·	·48	45·8
28	18	·75	36·2	·81	34·5	·72	39·5	·82	44·5	·60	44·	·27	45·2	·64	44.5	·75	43·	·67	41·4
29	19	·95	31·	·95	30·	·79	33·2	·92	34·5	·79	35·	·36	35·8	·89	34.2	·91	35·	·82	33·5
30	20	30·23	22·7	30·33	27·7	30·02	28·2	30·14	31·	30·04	31·5	·59	32 2	·92	32·5	30·17	29·5	30·05	30·6
Means . . .		29·08	32·3	29·20	31·7	29·78	30·3	29.88	30·7	29·71	32·6	29·01	31·8	29·73	31·5	29·83	34·4	29.69	32·0

N.B.—The extremely low temperature on the 7th and 8th of February all over the kingdom agrees exactly with our prediction of "very low temperature" at that period.—*Vide* p. 34.

J. Cunningham, Printer, Crown-court, Fleet-street, London.

Barometric Curves,

1, Carlisle; 2, Hereford; 3, Thwaite; 4, Gosport.

⊙ in ♓ 1840 & 1841