Condurango

I HAVE read in No. 104 (October 26, 1871) of your scientific and highly-interesting journal, a few words on "Condurango," the new Ecuadorian plant that has lately called so much general attention in Europe and America to its supposed properties of curing cancer.

The want of exactitude in the description of the plant will doubtless give an erroneous idea of it to your readers, and with the desire of effacing such errors as those published in the "Andes" of Guayaquil, and in Bogota by Mr. Buyon, to whom you make reference, allow me to present to you and your readers the botanical description of the Condurango twining plant, very useful, indeed, in some rheumatisms and secondary syphilitic disorders, but of very doubtful medicinal properties in cancer, so far as my own experience goes.

The Condurango belongs to the order *Asclepiadaceæ*, 3rd tribe, which corresponds to *Aclepiadeæ veræ*; 1st division *Astephanus*, whose characters are that the limb of the corolla is without scales, and the stamens without appendage or corona.

This division comprehends only five genera, viz., *Mitostigma*, *Astephanus*, *Hæmax*, *Hemipogon*, and *Nantonia*. In none of these genera can the Condurango be classed.

The genus *Mitostigma*, as a distinguishing character, has two long filaments at the end of the stigma, and this is not the case in Condurango. The genus *Astephanus* has the sepals acute, the corolla subcampanulate, and the stigma elongated; characters that do not belong to the Condurango. The genus *Hæmax* has the divisions of the corolla hooded, and other characters not observed in the Condurango. The genus *Hemipogon* has the sepals of the calyx acute, hard, and with a curved extremity. The corolla is campanulate, which is not the case in Condurango. The genus *Nantonia* has the sepals striated and curved, which also is not the case in Condurango.

The flowers of the Condurango have a calyx of five divisions, obtuse, ovate, and villose in their inferior part, and of quincuncial præflorescence. The corolla is rotate, of five divisions, lanceolate, hairy at the base on the inside, and somewhat fleshy, with a membranous margin. Its æstivation is imbricated. The stamen has no appendage or corona; the anthers are terminated by a membrane, and the pollen-masses are elongated and suspended. The stigma is pentagonal and conical. The flowers are numerous and disposed in umbelliferous inflorescence.

As aforesaid, the Condurango forms a new genus. It is absurd to speak of Condurango as if it were the same as *Mikania huaco*.

In the importance of the subject I hope to find ample apology for asking room in your columns for these few lines.

A. DESTRUGE

Guayaquil, Ecuador, Dec. 13, 1871

Ocean Currents

IT appears to me that the numerical data adduced by Mr. Croll in his letter (NATURE, Jan. 11) disprove his conclusions.

The doing of 9 foot-pounds of work upon a pound of water should give it a velocity (in feet per second) of

$$\sqrt{2 \times 32 \times 9} = 24;$$

and the doing of one foot-pound of work upon a pound of water should give it a velocity of eight feet per second. These are much greater than the observed velocities, so that a margin is left for friction.

The following passage in Mr. Croll's letter also calls for some remark:—"But it must be borne in mind that the deflecting power of rotation depends wholly on the rate at which the body is moving. If difference of specific gravity be regarded as the impelling cause of any current, the deflecting power of rotation will certainly be infinitesimal."

The deflecting force does indeed vary directly as the velocity of the body acted on; but the curvature of path which the deflecting force tends to produce, is proportional to the quotient of the deflecting force by the square of the velocity, and therefore varies inversely as the velocity. In latitude 45°, a velocity of a foot per second would give a radius of curvature of less than two miles. Here, then, again, there is a wide margin left for resistance. The expression for the radius of curvature in feet, supposing that there are no resistances, is

$$\frac{6850\,v}{\sin\lambda},$$

λ being the latitude, and v the velocity in feet per second.

Belfast, Jan. 13 J. D. EVERETT

Mock Sun

I THUS name the phenomenon I am about to describe, but without regard to scientific accuracy. Last evening, a little before sunset, I observed a dark bank of clouds couched on the horizon, just beneath the sun, and a long mass of cirro-stratus above him. A band of light, of about half his width, stretched up and down to the clouds. This remained visible, with remarkable changes, till 25min. after the sun's total immersion. On his disappearance the band gradually widened (or seemed to do so), and assumed the form of a table flower-vase, *i.e.*, bulged at the base and cylindrical above. At ten minutes after sundown the band, which had been about 10° in length, stretched to 20°, being superposed on the cirro-stratus, where it was rose-coloured, the bulged portion being orange. At twenty minutes after sundown a slight collapse occurred, and the band almost disappeared, the bulged portion becoming an orange disc, just like a second sun setting in fog. Soon afterwards this became elongated, and the band reappeared, stretching over an arc of 40°. A few minutes later all disappeared. I witnessed this beautiful phenomenon from a carriage on the L. and N. W. Railway, on both sides of Blisworth. C. M. INGLEBY

Edgbaston, Jan. 20

Solar Eruptions and Magnetic Storms

AT a recent meeting of the Astronomical Society a paper was read by Mr. Ranyard, in which some suggestions were put forward concerning the possibility of accounting for the solar prominences on the supposition that they may be caused by the projection of matter from a lower level, and that such an uprush into and through the layers above, emerging into the lighter envelope of the chromosphere, might lift before it a cone of compression of the gaseous matter, producing an elevation on the surface, visible to us as a prominence. And the solid particles or masses thus projected might form meteorites, the shape of the prominence being afterwards modified by other causes.

This theory, offering as it does a possible account of the genesis of prominences and meteorites, appears to contain the germ of another hypothesis respecting the cause of the connection between solar eruption and terrestrial magnetism.

If it be legitimate to suppose that in and near the photosphere we have a circuit of conducting matter (viz. incandescent metallic vapours), according to well-known facts any cause tending to effect an unequal distribution of heat, and at the same time a want of homogeneity of structure, such as a difference of pressure or density, would establish thermo-electric currents in such a circuit.

Now such a difference would arise from an upward burst of matter from below the photosphere. If, therefore, the prominences have their origin at great depths below the photosphere, we may expect currents of considerable intensity to circulate round the equatorial region of the sun. In the equatorial region rather than in any other, because it is there that the greatest disturbance is manifested, as shown by observations on the limits of spots and prominences; and, therefore, *there* that the necessary *differences* of temperature are most likely to occur, the effects of such currents being to create secondary or reduced currents in the adjacent layers, and, if of sufficient intensity, in the earth itself.

Provided that this be so, this supposition will suffice to reconcile some observed facts. Secchi has deduced,* in treating of the periodical variations of the magnetic elements, the law that "The annual disturbances are at a maximum at the equinoxes, and at a minimum at the solstices."

Knowing then that the plane of the sun's equator passes through the earth on June 11th and Dec. 12th, and that therefore the equator as seen from the earth presents its widest ellipse in March and September, it follows that such thermo-electric currents, if they exist, are able to exert their maximum inductive effect on the earth at or near the equinoxes.

The case is analogous to the experiment in which terrestrial magnetism is made to cause induced currents in a closed circuit rotated round an axis at right angles to the magnetic meridian.

In this case the ring is placed successively in positions variously inclined, but always keeps its plane perpendicular to the meridian, and the maximum induced current then occurs.

Similarly, solar equatorial currents would produce *their* maximum effect when the plane of the sun's equator has its aspect most nearly in the direction of the earth, and although any

* De La Rive's Electricity, tom. iii. p. 780