

Koitapu are supposed to have power to bewitch and cause disease, also to prevent rain from falling.

The Motu take presents to Koitapu in case of disease, and the women sometimes suck the seat of pain in the same manner as described in Sir J. Lubbock's "Origin of Civilisation," pp. 27, 28. There are many indications that the Koitapu are now but a small remnant of what was once a numerous and powerful race.

The Koiari are closely allied to the Koitapu, and inhabit the mountains at the back of the Motu and Koitapu district. They consist of a number of scattered tribes. They are physically inferior to the Motu and Koitapu, but more numerous. They are small in stature, dark in colour, and dirty in person. Their hands and feet are remarkably small. Their villages are built on the ridge of a hill. Tree houses are common, almost every village having one at a considerable height. Their language is similar to Koitapu. They cultivate the soil carefully, and are great hunters. The women are more degraded than among the Koitapu or Motu, and polygamy is more common.

The dead are laid out for some weeks in the house, and then exposed to sun and smoke until perfectly dry. When the bones fall apart they are collected and tied up in a bundle and hung up in the deserted house or in a tree close by.

The mode of salutation among the Koiari is peculiar. They salute their friends by chucking them under the chin.

They are great chewers of the betel-nut, and are very eager to obtain salt. They barter their produce occasionally with the Motu at Port Moresby for fish, cocoa-nuts, salt, and pottery.

SCIENTIFIC SERIALS

Annalen der Physik und Chemie, No. 11, 1878.—In a valuable paper on the passage of the galvanic current through iron, Herr Auerbach describes experiments with reference to the effect of longitudinal magnetisation of iron bars or wires on their resistance, and to the extra currents at closing and opening of the circuit, explained by a transverse or circular magnetisation. Circularly magnetic iron conducts a current worse, the stronger the circular magnetisation. The resistance of longitudinally magnetised iron may be less or greater than that of unmagnetic; in the former case the resistance-function has nowhere a minimum or maximum; the resistance rises steadily from the state of saturated longitudinal, to that of saturated circular, magnetism; and this is realised in hard steel. In the other case the resistance-function has a minimum for the unmagnetic state. Herr Auerbach explains the effects observed on the hypothesis of rotatable molecular magnets, and indicates the bearing of his views on them on the fundamental laws of galvanism, and the galvanic constants of iron.—In a third series of experimental magnetic researches, Herr Fromme deals with two modes of magnetising a rod with a spiral conveying a galvanic current. It may be inserted in the spiral after the circuit has been completed, and withdrawn while the current is still flowing; or it may be inserted before the circuit is closed, and withdrawn after it is opened. He now obtains a distinct difference, unperceived before, between the effects, and the causes of the phenomena are thought to be not of secondary nature (or very little so), but deducible from the essence of magnetism. The results of experiment are found to agree better with the Neumann-Kirchhoff theory, when the latter of the two above methods is abandoned.—Herr Ritter communicates a first paper of researches on the height of the atmosphere, and the constitution of gaseous cosmical substances. On the two hypotheses of an indifferent state of equilibrium in the atmosphere, and of the oxygen and nitrogen retaining approximately, in all changes of condition, the properties of a so-called perfect gas, he arrives theoretically at a height of 40 km. for the atmosphere, whereas Schiaparelli's observations make it more than 200 km. He removes this discrepancy by supposing that, in the rise of the air-masses, not only aqueous vapour, but oxygen and nitrogen, pass into the state of aggregation of a snow-cloud.—Dr. Kolacek studies mathematically the influence of capillary surface-pressure on the velocity of propagation of water-waves.

SOCIETIES AND ACADEMIES

LONDON

Royal Society, January 9.—"Note on the Inequalities of the Diurnal Range of the Declination Magnet as recorded at the Kew Observatory," by Balfour Stewart, F.R.S., Professor of

Natural Philosophy in Owens College, Manchester, and William Dodgson.

We are at present engaged in searching for the natural inequalities of the above range, more especially for any of which the period is between 24 and 25 days. We find strong evidence of an inequality of considerable magnitude of which the period is 24.00 days, very nearly. We have also found preliminary evidence of the existence of two considerable inequalities having periods not very far from 24.65 and 24.80 days. These two appear to come together in about 11 years, but we cannot yet give the exact time of this.

We have not found a trace of any inequality with a period of 24.25 days.

"Some Experiments on Metallic Reflexion," by Sir John Conroy, Bart., M.A. Communicated by Prof. G. G. Stokes, Sec. R.S.

He finds that when light is reflected from a polished surface of gold or copper in contact with various media, the angle of principal incidence diminishes, and the principal azimuth increases with the increase of the refractive index of the medium in contact with the metallic surface; and further, the diminution in the value of the principal incidence appears to be nearly in proportion to the increase of the refractive index of the surrounding medium.

He states that the values of these angles for gold with red light are:—

	Principal Incidence.	Principal Azimuth.
In air	76° 0'	35° 27'
In water	72° 46'	36° 23'
In carbon bisulphide	70° 03'	36° 48'

Assuming that the angle of principal incidence for a metal is the same as the angle of polarisation of a transparent substance, that is the angle whose tangent is equal to the refractive index, the value of that angle in air, as deduced from the measurements made in water and carbon bisulphide by multiplying the tangent of the principal incidence in those media by their refractive indices is 76° 53' and 77° 22' instead of 76°.

"Researches on the Absorption of the Ultra-Violet Rays of the Spectrum by Organic Substances," by W. N. Hartley, F.Inst. Chem., F.R.S.E., F.C.S., Demonstrator of Chemistry, King's College, London, and A. K. Huntington, F.Inst. Chem., A.R.Sc. Mines, F.C.S. Communicated by Prof. G. G. Stokes, Sec. R.S.

The following were the conclusions reached:—

1. The normal alcohols of the series $C_nH_{2n+1}OH$ are remarkable for transparency to the ultra-violet rays of the spectrum, pure methylic alcohol being as nearly so as water.
2. The normal fatty acids exhibit a greater absorption of the more refrangible rays of the ultra-violet spectrum than the normal alcohols containing the same number of carbon-atoms.
3. There is an increased absorption of the more refrangible rays corresponding to each increment of CH_2 in the molecule of the alcohols and acids.
4. Like the alcohols and acids, the ethereal salts derived from them are highly transparent to the ultra-violet rays, and do not exhibit absorption-bands.

In order to ascertain whether isomeric bodies exhibited similar or identical absorption-spectra, a series of benzene derivatives was examined. From the great absorptive power of this class of substances it was found necessary to use very dilute solutions, even though the cells holding the liquids were not more than 0.75 inch in thickness. Curves were plotted by taking the proportions of substances in solution as ordinates, and the position of absorption-bands as abscissæ, and these curves are highly characteristic features of very many compounds. About twenty diagrams have thus been made.

The following is a summary of the chief points of interest appertaining to benzene and its derivatives:—

1. Benzene, and the hydrocarbons, the phenols, acids, and amines derived therefrom, are remarkable firstly, for their powerful absorption of the ultra-violet rays; secondly, for the absorption-bands made visible by dissolving them in water or alcohol, and diluting; and thirdly, for the extraordinary intensity of these absorption-bands, that is to say, their power of resisting dilution.
2. Isomeric bodies, containing the benzene nucleus, exhibit widely different spectra, inasmuch as their absorption-bands vary in position and in intensity.