

caustic soda in excess to a solution of copper sulphate and tartaric acid, with which has been mixed a little grape sugar (a small quantity of "set" honey): the formation of yellow cuprous oxide commences at the surface of the liquid, and is seen gradually to extend to the lower parts, showing that the upper parts first attain the temperature requisite to cause the reaction to occur which precipitates cuprous oxide.

These experiments are easy of execution, and by the above arrangement, or still better by being projected on the screen, may be rendered visible at a considerable distance.

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FRANK CLOWES

Mr. Garrod's Theory of Nerve-Force

THE thermo-electric theory of nerve-force propounded by Mr. Garrod (NATURE, vol. viii. p. 265) seems capable of extension. If a pole of metal, cased in a non-conducting sheath, were sunk in an artesian boring so as to reach from the level of constant temperature to the greatest depth attainable, how far would such pole fulfil the conditions of a sheathed nerve penetrating from the cool surface of an animal to the warmer interior? And with so little difference of temperature in so great a length, would its dynamic effect be at all appreciable?

A quarter of a mile of submarine cable let down the shaft of our Cambrea mine might represent a sheathed nerve; and any existing nerve-force might there be tested. Abandoned mine-shafts are the terrors of our Cornish moorlands. Is it within the power of Science to convert them into earth-nerves, say by lining their sides with non-conducting material, and then packing them tight with conductive slag or some kind of metallic refuse? And is it possible, even in theory, to make such earth-nerves work some kind of earth-muscle? For ignorant me to speak of this subject is ultracrepidism (NATURE, vol. vii. p. 262). Yet it seems a fair extension of Mr. Garrod's ingenious theory.

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Genesis in Borneo

MR. CAMERON'S paper read at the Society of Biblical Archaeology, testifies to the early diffusion of Semitic traditions by the agency, it may be inferred, of Moslem converts.

The same traditional coincidences recorded of Borneo are found in New Zealand and elsewhere, and would naturally accompany the diffusion of Malayan dialects throughout Polynesia, an influence the duration of which may be counted by centuries.

A. HALL

Dec. 11

Indian Snakes

In a small treatise on Indian snakes by Dr. Nicholson, R. A., the author states his belief that cobras will not feed in captivity unless forced to, starving themselves voluntarily to death. He thinks, also, that jugglers in this country either "feed their cobras with liquid nourishment, or else let them loose when their lives are in danger," recapturing them at a future time.

To test the correctness of this, I questioned a snake-charmer a few days ago, and he informed me that he fed his cobra every week with frogs. His snake had then been recently fed, so he was told to bring it to the bungalow again in a few days. A frog (*R. usgrina*) was procured, and placed in the small basket in which the cobra was kept. The latter seized it at once; but as I was anxious to see the whole process, which could not be done whilst the snake was coiled up in the basket, I requested the man to place the frog on the ground. As it struggled away (the hind limbs of the poor reptile had been broken) the cobra followed it eagerly, and again and again seized it. The want of fangs, and the size of the frog, which in its inflated state exceeded considerably the circumference of its enemy, rendered these attempts ineffectual; so a smaller frog was caught, and placed with the cobra in the basket. This was swallowed in a short time, the snake pushing its victim against its coils, and working down the hind limbs by a lateral motion of the lower jaw, very similar to that of a cow chewing the cud.

The large frog was now placed in the basket, and the cover put on, and in about half an hour had followed its companion. The cobra's appetite was now appeased, for after seizing a third frog it let it go, on its croaking a remonstrance.

A laughable incident occurred whilst the snake was following the frog over the gravel path. A performing monkey belonging to the juggler, in a spirit of mischief, or perhaps fearing that its master's

property was escaping, stepped gravely after the snake and laid hold of it by the tail. As a natural consequence, round came the cobra and menaced the monkey, which, retreating with sundry grimaces, took refuge with the juggler, in great alarm at the turn events had taken.

This cobra is a small one, and as it is one of those very pale, almost cream-coloured varieties, that finds no mention in Günther's able work, I am anxious to examine it thoroughly. The owner, however, affirms that he has to draw its fangs about once a month, and as he is most cautious in handling the reptile, it is probable that the fang matrix has not been destroyed, and examination will be safest just after the operation of extracting the fangs.

Mangalore, Sept. 12

E. H. PRINGLE

CLASSIFICATION OF CLOUDS\*

IN an essay on the "Modifications of Clouds, read to the Askesian Society in 1802, Howard first proposed his classification of clouds, which has since been the generally received authority on the subject. His system has thus stood its ground for more than half a century, in spite of its defects and of the misconstruction not unfrequently put on the two terms, "stratus" and "nimbus" since the publication of Kaemtz's Meteorology. These misapprehensions and the obscurity and confusion arising from them are pointed out by Prof. Poey, but the errors have not been followed so generally as is asserted, at least by British meteorologists. In a series of papers issued at intervals during the past eleven years, Prof. Poey has endeavoured to develop a new classification of clouds, of which the volume before us is the result.

The following is Poey's classification compared with that of Howard:—

POEY'S CLASSIFICATION.		HOWARD'S CLASSIFICATION.	
	Cloud composed of	First type:	cirrus.
First type:	cirrus } spicules of	Derived:	{ cirro-stratus.
	{ cirro-stratus } ice.		{ cirro-cumulus.
Derived:	{ cirro-cumulus } snow.	Second type:	cumulus.
	{ pallio-cirrus }	Derived:	cumulo-stratus.
Second type:	cumulus { vesicular	Third type:	stratus.
	{ pallio-cumulus; aqueous	Derived from	the three
Derived:	{ fracto-cumulus; vapour.	types:	} nimbus.

In forming his system, Prof. Poey first strikes out the "stratus" as being from Howard's own definition not a true cloud, but only "mist"; the "cumulo-stratus" as not differing really from the cumulus; and the "nimbus" as being not a single cloud, but rather a system of clouds. He retains the word "stratus" as part-descriptive of the "cirro-stratus," but in this case it is exclusively restricted to those instances where the cirrus arranges itself in a stratified form, and is not applied when the arrangement is an extended sheet or continuous layer of considerable thickness totally impervious to the sun's rays. To this latter condition, the new term "pallium" is applied.

In his classification Poey arranges the clouds in the order in which they severally appear, from the cirrus, the most elevated, its height being from 30,000 to 50,000 feet, to the fracto-cumulus, the lowest of all; and groups them into three divisions according as they are composed of ice-crystals, snowy particles, or vesicular vapour.

But the most fundamental change which he has introduced into the system is the *pallium* or *sheet-cloud*, in its two distinct forms of *pallio-cirrus*, and *pallio-cumulus*, according as it is formed from the cirrus or the cumulus. The *pallium* is the greyish, or ash-coloured cloud which overspreads the whole sky, and from which rain falls continually for hours or days together. On the approach of rain the *pallio-cirrus* is formed by the rapid increase and thickening of the cirrus downwards from the enormous

\* "Nouvelle Classification des Nuages suivie d'Instructions pour servir à l'Observation des Nuages et des Courants Atmosphériques." Par André Poey, Havane. (Extrait des Annales hydrographiques, 1872.) Paris, 1873. (17 Planches).