

the undoubted sexes of *Meroglossa parallela* (Ckll.), a metallic insect related to the type of *Palaerhiza*, and these showed exactly the same thing. I then looked at a new species (*Palaerhiza* or *Meroglossa melanura*), with a honey-coloured abdomen black at apex, the mesothorax striped with yellow and black, and the base of the metathorax finely longitudinally fluted. In this the sexes were associated without a doubt, and the difference in the tongues was as in the others. Still others were examined, all with the same result. It appears that the female in this genus lacks, or fails to develop, the determiner which represents the pointed apex of the tongue. Another peculiar character, a comb on the first two joints of the maxillary palpi, is common to both sexes of *Meroglossa*.

Another generic name for Australian bees must fall. The study of additional material shows that my *Prosopisternon* is not valid; its type-species must be known as *Prosopis serotinella*.

The extraordinary *Pachyprosopis mirabilis* of Perkins, described from N. Queensland, without further data, was taken by Mr. Turner at Mackay in May, 1900.

T. D. A. COCKERELL.

University of Colorado, Boulder, Colorado, U.S.A.,  
April 21.

#### Fluorescent Absorption.

IN NATURE of January 6 Mr. Burke criticises the conclusions which I drew from my experiments proving that fluorescent absorption does not exist (*Phil. Mag.*, 1909).

The method which I devised was a direct one, and free from all sources of error. I cannot see any point in Mr. Burke's criticism; I used a scheme for making the source of light and the fluorescing absorbing cell intermittent, throwing the flashes either "out-of-step" or "in-step" at will. If the flashes were out-of-step, the light from the source traversed the absorbing cell while it was not fluorescing. This flash entered the eye, and was immediately followed by the flash of fluorescent light from the cell, the source being in darkness during its emission. The total amount of light, or the sum of the two sets of flashes, was the same whether they were "in-step" or "out-of-step," showing that the absorbing power of the cell was not increased by its fluorescence. Mr. Burke now appears to stand alone as a champion of fluorescent absorption, for Nichols and Merritt have recently repeated their work with improved apparatus and methods (one of them being a modification of my stroboscopic method), and have failed to find any trace of the phenomenon.

R. W. WOOD.

Johns Hopkins University, April 28.

#### Centre of Gravity of Annual Rainfall.

MR. WATT'S *nil admirari* attitude towards the C.G. of annual rainfall is unfortunate, for, notwithstanding his disclaimer in the first sentence, I find that his statement in the last sentence of his letter in NATURE of April 28 is another *a priori* shot! In the Mysore rainfall annual reports of the last fifteen years I have given diagrams of the monthly rainfall of the eight districts as percentages of the yearly totals, but they are not *simple*, or *similar*, or *symmetrical*. Yet year after year there is a close agreement in the C.G., or date round which each year's rainfall balances. *Verb. sat, sap.*

J. COOK.

30 Hermitage Gardens, Edinburgh, May 3.

#### Impure Manganese Di-oxide.

A FEW weeks ago I had occasion to order a quantity of manganese di-oxide for general lecture and laboratory experiments, and we duly received the same from a well-known firm the name of which it would be invidious to mention. Although in colour the manganese di-oxide was normal, we soon found that its chemical properties were very erratic. When mixed with potassium chlorate and heated gently, the mass inflamed inside the flask, and a reaction proceeded with explosive violence, resulting in the formation of clouds of smoky gas relatively poor in oxygen.

When warmed with concentrated hydrochloric acid the action was unusually vigorous, and an inferior grade of chlorine was evolved possessed of a curious odour resembling that of euclorine. The black colour of the powder rapidly disappeared, yielding a yellow solution, and a white, insoluble residue, which, from its voluminous appearance, suggested silica.

One of my senior students, Mr. William Davison, thereupon analysed the di-oxide, and obtained the following results:—

	Per cent.
Manganese di-oxide ... ..	60.06
Antimonious oxide ... ..	35.64
Silica ... ..	2.20
Ferric oxide ... ..	3.00
Arsenious oxide ... ..	trace
Sulphur ... ..	trace
Moisture ... ..	1.05
	99.95

That this was a case of wilful adulteration I do not suppose for a moment; but it seems desirable to direct the attention of teachers and others to the possibility of such a common and cheap article as manganese di-oxide being sold, not only in an impure form, but in one which it is positively dangerous to use with potassium chlorate for such a simple and universal experiment as the preparation of oxygen.

J. NEWTON FRIEND.

The Technical College, Darlington, May 6.

#### BRITISH NEW GUINEA.

COLONEL MACKAY was chairman of a Royal Commission appointed to proceed from Australia to inquire into the present conditions of the territory now known as British New Guinea. As such, he proceeded along the south coast of the island to its eastern extremity, then visited the D'Entrecasteaux and other groups in the offing, subsequently proceeding along the north coast to Buna Bay. Here he left the sea and struck inland to visit the Yodda Goldfield, returning overland to Port Moresby. This was the most arduous and interesting part of his journey, for the Owen Stanley Mountains, which here reach about 7000 feet, had to be crossed. Apparently the range really consisted of a series of more or less parallel ridges, up and down which the party was scrambling for seventeen days, camping during much of the time in tropical rain forest.

It is the record of the above trip which "Across Papua" presents to us in pleasantly written form. The expedition was not in any way a scientific one, but the author shows that he has considerable powers of observation. He notes "the absence of stone on the higher ridges, and the extreme narrowness of their root-strewn, moss-carpeted crests. How also, as we approached the higher altitudes, lichen and moss gradually enveloped the timber until they covered limbs and leaves alike; but what impressed me most was the serene calm that reigned over all, for I heard no crash of fierce or fearful animal, no sound of human voice, no song of radiant bird in all that kingdom of mist and sunshine, of sparkling dew-gems, and immemorial silence."

The truth of this traveller's description we know well, but what wealth it suggests to the tropical naturalist—the enormous variety of plants which make up such a forest, each with its peculiar insects, many lizards and frogs showing quite peculiar adaptations to their damp environment, peculiar land shells on every ridge. The natives live on the lower slopes, but seem to be less cannibal and of better stock than

1 "Across Papua." Being an Account of a Voyage Round, and a March Across, the Territory of Papua with the Royal Commission. By Colonel Kenneth Mackay C.B. Pp. xvi+192. (London: Witherby and Co.) Price 7s. 6d. net.