

I desired to state briefly the principal countries which were represented at Munich and not at Paris, and *vice versa*, but I might add that, although representatives from both Austria and Russia came to Paris, yet there was much regret at the absence of Prof. Hann, the eminent director of the Austrian Meteorological Bureau, and of Prof. Wild, late director of the Physical Central Observatory at St. Petersburg, both of whom had taken an active part in these international meetings since the first conference at Leipzig in 1872.

A. LAWRENCE ROTCH.

BLUE HILL METEOROLOGICAL OBSERVATORY, January 6, 1897.

THE STUDY OF FEAR.

EDITOR OF SCIENCE: One sentence in your account of Prof. Stanley Hall's study of fear has especially attracted my attention: "The fear of high places, President Hall thinks, is a vestigial trace, like the gill slits under the skin of our necks, antedating limbs and inherited from our swimming ancestors." A study of fear by the comparative and genetic method seems called for if results are to rest on a sure and broad foundation. In my own investigations on the psychic development of animals the subject has not been overlooked. I have called attention to a peculiar manifestation when even the youngest mammals and birds are placed near the edge of a surface that is elevated; but I have also pointed out that a turtle will walk off any such elevated support again and again, and, as is well known, a frog will jump almost anywhere, so that, if I understand Dr. Hall aright in the above sentence, these facts seem to present a difficulty in the acceptance of this part of his theory.

WESLEY MILLS.

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GLOSSOPHAGA TRUEI.

TO THE EDITOR OF SCIENCE: In the Proc. U. S. National Museum, Vol. XVII., No. 1100, I described a new species of bat under the name *Glossophaga villosa*. But a *Glossophaga villosa* was described by Rengger (Naturgesch. der Säugeth. von Paraguay 1830, 80). I, therefore, rename the new species. I propose the following: *Glossophaga truei*, after Mr. Frederick W. True,

the accomplished curator of Mammals at the Museum.

HARRISON ALLEN.

PHILADELPHIA, PA., January 13, 1897.

SCIENTIFIC LITERATURE.

Étude de Huit Essais de Machine à Vapeur. Par V. DWELSHAUVERS-DERY. Extrait de la Revue Universelle des Mines, t. xxxvi., 1896.

Mon. Dwelshauvers-Dery has published recently a report on the work of his laboratory, on his experimental engine, relative to the efficiency of the machine under various conditions, mainly affecting the quality of steam supplied.* He supplements that report, in the article here referred to, by a more complete study of these effects, and with extended illustration of his methods of conducting the work and of giving instruction in this department. He describes the conduct and computation of eight engine-trials, four with saturated and four with superheated steam. His conclusions from the preliminary study have already been given.†

Dwelshauvers is a consistent follower of Hirn, whose 'practical' or applied theory of the steam-engine he has developed, giving it algebraic expression and establishing seven principal equations by means of which he is enabled to compute essential data from the results of observation during an engine-trial. These expressions and their derivation are given in the report here under review. His graphical illustrations of the method of distribution and of variation of thermal and of dynamic energies in the cycle studied, and their inter-conversion, afford a means of bringing clearly before the investigator and the student the essential facts of engine-operation, in each case, and throw into high relief the most important phenomena.

They show clearly how great is the quantity of heat-energy exchanged between steam and cylinder-wall, and bring out plainly the fact that this waste is enormously less with superheated than with saturated steam. They show that the use of the steam-jacket is 'but a palliative, not a radical and complete remedy' for this waste. The steam-jacket, while almost invariably reducing wastes, nevertheless itself

* *Revue Universelle des Mines*, t. xxxiv., 1896.

† SCIENCE, N. S., Vol. IV., No. 89, p. 654.