Hastings sand, when generally it lay always on the Weald clay.

The change effected on land and sea areas at the end of the Jura period was on a very grand scale in Europe as well as in America; and the Neocomian or Lower Cretaceous was not deposited in many portions of central Europe, especially in England, except at the little corner of Speeton, on the Yorkshire coast; and in the United States the Neocomian, even more limited than in Europe, was confined to Texas, the Indian Territory and southern Kansas.

One word of explanation on the use in France and Switzerland of the name 'Puberckian,' to designate the upper Tithonic or Berriasian. From the beginning, in 1848 and 1859, I showed that the name was wrongly applied to strata much younger than the Purbeck beds of England. The position of the *Hemicidaris Purbeckensis*, found in the first beds of the Salins limestone, authorize the correlation of the Puberckian of England with the base of the calcaires porlandiens or Lower Tithonic of the Jura. And the Purbeckian of the Jura Mountains, so well described by Gustave Maillard in his well known monograph (*Mém. Soc. Paléont. Suisse*, Vol. XI., Genéve, 1884), correspond and is the equivalent of the lower portion of the Spilsby sandstone of Lamplugh and Pavlow; it is to say, it represents in the Jura the base of the Speeton clay of England, instead of being correlated to the Purbeck beds of the Island of Portland.

CORRELATION OF THE ENGLISH AND EAST FRENCH FORMATIONS.

	England.	*Eastern France.*	
Speeton.	Tealby limestone.	Urgonian or Upper Neocomian.	Neocomian.
	Tealby clay.		
	Claxby ironstone.	Hauterivian or Middle Neocomian.	
	Spilsby sandstone.	Valengian or Lower Neocomian.	
	Weald clay.	Jura—Portlandian limestone.	
	Hastings sands.	Ardéche—Upper, Middle and Lower Tithonic.	
	Purbeck beds.		
	Portland stone or *Exogyra virgula* zone.	Portlandian marls or *Exogyra virgula* zone.	

The correlation of the Wealden of England with the Tithonic of Franche-Comté, Switzerland, Savoy, Dauphiné, etc., is a beautiful work awaiting the careful researches of English geologists, and it is to be hoped that Mr. George William Lamplugh, now on the staff of the Geological Survey, who has done such good service at the geology of Speeton, will continue the work so well begun forty-eight years ago by Edward Forbes, so well traced in 1855 by John Phillips, and now so well advocated by Prof. O. C. Marsh.

Jules Marcou.

Cambridge, January 1, 1897.

COMPLIMENT OR PLAGIARISM.

The carefully prepared reply of Professors Beman and Smith (Science, p. 61) is disingenuous. Professor Halsted would gladly have printed in parallel columns the whole of his section, *Partition of a Perigon* (Elements, 151), which reappears in Beman and Smith, p. 179, as 'Partition of *the* Perigon.' As I made this section myself, I feel safe in asserting that it never before occurred in any geometry in the English language; but how could I ask the editor of Science to reprint it simply because Professors Beman and Smith had reprinted it? They deliberately say, "the *order* of the problems: To bisect a perigon, to trisect a perigon, to cut a perigon into five equal parts, to cut a perigon into fifteen equal parts," etc., "may be found in Newcomb's Geometry." (Science, p. 61.)

With Newcomb's book now in my hand, I assert that not one of these problems occurs therein. Next they assert that the word 'perigon' is 'found in several geometries.' If, in English, they mean Halsted's Metrical Geometry, 1881; Halsted's Elements, 1885; Halsted's Elementary Synthetic, 1892; Beman and Smith, 1895. The statement is disingenuous. If they knew of any other they would have named it.

George Bruce Halsted.

THE METEOROLOGICAL CONFERENCE AT PARIS. A CORRECTION.

On page 17 the last sentence of the first paragraph of my report should read as follows: "No one came from either Spain or Brazil, as was not the case at Munich, but Italy, Belgium, Canada and Mexico each sent a delegate to Paris, the two latter countries participating for the first time in an international meeting."

I desired to state briefly the principal countries which were represented at Munich and not at Paris, and *vice versâ*, 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.

MCGILL UNIVERSITY, MONTREAL.

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 interconversion, 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.