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WILLIAM FRANCIS, Ph.D. F.L.S. F.R.A.S. F.C.S.

"Nec insecrurum sane textus ideo melior quia ex se fila gignunt, nec noster  
vilior quia ex alienis libamus ut apes." Jusr. Lips. Polit. lib. i. cap. 1. Not.

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With other metals the determination is difficult in consequence of secondary processes.—Wiedemann's *Beiblätter*, 1880, No. 9, pp. 681, 682.

## RESULTS OF PENDULUM EXPERIMENTS.

BY C. S. PEIRCE, ASSISTANT COAST AND GEODETIC SURVEY.

The following are the results obtained from observations made by me, for the U.S. Coast and Geodetic Survey, at four important stations, for the purpose of comparing the lengths of the seconds' pendulum, together with reductions to the sea-level and to the equator. In making the last reduction I have assumed the ellipticity to be  $\approx 1 : 293$ , which is the latest result from measurements of arcs.

	At station. metre.	At sea-level. metre.	At equator. metre.
Hoboken . . . . .	0.9932052	0.9932074	0.9910003
Paris . . . . .	0.9939337	0.9939500	0.9910132
Berlin . . . . .	0.9942399	0.9942482	0.9909865
Kew . . . . .	0.9941776	0.9941790	0.9910083

The differences of the figures in the last column from 0.991 metre, a value conveniently near their mean, when reduced to oscillations per diem are:—Hoboken  $+0.01^{\circ}$ ; Paris  $+0.58^{\circ}$ ; Berlin  $-0.59^{\circ}$ ; Kew  $+0.36^{\circ}$ . The following are the residuals of former observations according to Clarke ('Geodesy,' p. 349):—

New York  $+0.20^{\circ}$ ; Paris  $-3.29^{\circ}$ ; Kew  $+2.89^{\circ}$ .

Colonel Clarke has used a value of the ellipticity  $= 1 : 292.2$ , derived from pendulum experiments. This slight difference, however, is not important.

It should be explained that the result for Hoboken is derived from [T<sup>2</sup> Inv.] "Regular Set," given on page 318, and also on page 416 of the Report of the Superintendent of the U.S. Coast and Geodetic Survey for 1876. This number is treated as explained on page 319, where the second line from the bottom for [T<sup>2</sup> Rev.] read [T<sup>2</sup> Inv.]. The latitude of the Hoboken station is stated on page 204. The numbers for the European stations are copied from page 320.

The length which I have taken as the metre has been derived from the German Eichungsamt, as fully explained in my Report. This is about 19.2 microns shorter than the quantity which is considered to be a metre in our own office of weights and measures, and is admitted in Berlin to be doubtful. It is impossible to fix the true metre at present; but I have but little doubt the above values will ultimately have to be diminished by about twenty microns on account of the error in the standard used.—Silliman's *American Journal*, October 1880.

## ON THE ILLUMINATION OF ELECTRODES.

BY R. COLLEY\*.

According to Slouguinoff (*Journ. de la Soc. phys. chim. de St. Pétersb.*), the light is intermittent which appears at electrodes

\* *Journal de Physique*, 1880, ix. pp. 155-160.

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