sample of dried kola by each of the foregoing methods and by the method adopted by us last year,[1] after thoroughly familiarizing himself with them by preliminary work.

	Method of Jean.		Method of Carles.		Knox and Prescott.	
	I.	II.	I.	II.	I.	II.
Caffein by weight.....	1.93	1.79	2.16	2.33	....	....
The same titrated	1.83	1.71	1.87	1.98	1.96	1.88
"Kolanin" .....none		none	2.89	3.17	....	....
Combined alkaloids...	....	....	....	....	1.62	1.61
Alkaloids of "kolanin"	....	....	0.59	0.69	....	....
Total alkaloids...	1.83	1.71	2.46	2.67	3.58	3.49

It will be seen that the impurity of caffein separated by Jean's method amounts to 4.84 per cent., and that of the caffein by Carles' method amounts to 14.25 per cent., which was determined by titrating the caffein with Wagner's reagent, after Gomberg's method.

Both give very low results as compared with those obtained by our own. They are tedious and otherwise unsatisfactory, in addition.

Further notes on the assay of kola are in preparation.

All the work reported upon in this paper has been done under the provision of the Stearns Fellowship of the University of Michigan.

ANN ARBOR, MICH., AUGUST, 1897.

NOTE.

A Correction.—In the September number of this Journal the author, together with Mr. F. Thompson, published an article entitled "A Preliminary Thermochemical Study of Iron and Steel," in which they give the results obtained on a number of samples of iron and steel of different composition and which had been subjected to varying heat treatments. On taking up the work again this fall and reviewing critically the results of last year's work, I find that there are at least two serious errors in the results that I wish to explain now in order to prevent anyone else from being misled by the conclusions drawn from the results as stated in the article. The statement that the loss by radia-

[1] Knox and Prescott, 1896: This Journal, 19, 73.

tion was only 0.24° in one hour was a mistake of observation. Careful determinations on this point, made recently, show that it must have been 1.24° instead of the former figure. The error from not taking into account the loss by radiation will amount to from about fifteen to forty calories per gram of metal, the loss depending on the time of solution. Another source of uncertainty, and one for which the author alone is responsible, is the fact that the solution used for dissolving the samples contained about four per cent. of free hydrochloric acid, and consequently the solution of the iron may not in all cases have proceeded according to the equation, $Fe + CuCl_2 = FeCl_2 + Cu$, and this copper redissolved according to the equation $Cu + CuCl_2 = Cu_2Cl_2$. Part of the iron may have dissolved directly in the free hydrochloric acid, and, since the heat absorbed in the decomposition of $2HCl$ is less than that necessary for the reduction of $2CuCl_2$ to Cu_2Cl_2, more heat would be rendered sensible when a good deal of iron was dissolved directly in hydrochloric acid than when solution was effected through cuprous chloride.

The work is being gone over again very carefully with view to eliminating any errors that may exist in the previous work, and I therefore request that judgment be suspended on the previous work until further results may enable us to form a more reliable conclusion than could be drawn from our former data.

E. D. CAMPBELL.

ANN ARBOR, MICH., DECEMBER 14, 1897.

ERRATUM.

On page 942, line 5 (Vol. 19), for "antimony" read "phosphorus."

BOOKS RECEIVED.

A Practical Treatise on Mineral Oils and their By-Products, including a Short History of the Scotch Shale Oil Industry, the Geological and Geographical Distribution of Scotch Shales, Recovery of Acid and Soda used in Oil Refining and a List of Patents Relating to Apparatus and Processes for Obtaining and Refining Mineral Oils. By Iltyd I. Redwood. London: E. & F. N. Spon, Limited. New York: Spon & Chamberlain. 1897. xiv + 336 pp. Price $6.00.

The Early History of Chlorine. Alembic Club Reprints, No. 13. Papers by Carl Wilhelm Scheele (1774), C. L. Berthollet (1785), Guyton de