

accuracy sufficient for the more exacting needs of the present day.

In this connection it is appropriate to call attention to the fact that not all of the values for heat of reaction commonly given in the tables correspond to consistent atomic weights, although most of them are calculated upon the basis of $O = 16.000$. A praiseworthy service would be rendered by any careful computer who would take the trouble to recalculate all the data and express the results for $20^{\circ} C$. in terms of the most accurate table of atomic weights and the admirable c. g. s. unit of energy, the kilojoule, adopted by Ostwald.¹ The latter's preliminary tables, although an important step in the right direction, are much hampered in their usefulness by their limited scope and the frequent omission of significant decimals.

SUMMARY.

This paper is a plea for greater accuracy in the calculation of thermochemical data. The importance of a uniform temperature for comparison and consistent atomic weights are especially emphasized. It is shown that when the heat capacity of the factors is used in the calculation, the resulting heat of reaction corresponds to the final temperature attained, while if the heat capacity of the products is used in the calculation, the result corresponds to the initial temperature.

NOTES.

Note on the Occurrence of Alum as an Efflorescence on Bricks.
—Some time ago I was consulted as to the cause of the discoloration of certain white bricks used in the construction of a large office building in this city. It was readily ascertained to be due to the formation and subsequent oxidation of ferrous sulphate. To remove the stain, some of the bricks were treated with sulphuric acid and then thoroughly washed with water. After they had been dried, a white efflorescence appeared on their surface, and it was found to consist for the most part of potash alum. As I have not been able to find any reference to the occurrence of this salt among the sulphates which are known to exist in similar efflorescences, it occurred to me that a quantitative analysis of the product might be of interest.

Owing to the lack of material the analysis made was incom-

¹ Ostwald's "Grundriss der Allgemeinen Chemie," p. 253 (1899).

plete, but the results proved conclusively that the water-soluble portion, which crystallized in octahedra, was nearly pure potash alum.

HARRY F. KELLER.

Rapid Determination of Molybdenum in Steel.—It has been found to be an improvement on the method previously described,¹ to use only 0.8 gram of drillings, and to make the precipitation in 200 cc. of the solution instead of 300 cc., taking only 100 cc. of the filtrate for reduction and titration. In this way an evaporation requiring more time than all the rest of the analysis put together is dispensed with. Reduction and titration should take place in small, and not in large volume of solution, on account of reduction not always being complete in the latter case, as is proved by the fact that Brakes² finds it necessary to use the old Emmerton factor. But if the separation be made in 200 cc. of solution, ammonia may not be used because the separation is an incomplete one with this reagent when made in a small volume of solution. The caustic soda solution is most easily made by dissolving 1 pound in 2000 to 2100 cc. water. 100 cc. of this solution is used in a determination.

Another improvement in the method (Brakes) is to expel the nitric acid used for the solution of the steel by adding 3 cc. of concentrated sulphuric acid and evaporating to fuming. The complete expulsion of the nitric acid is very important, and care must be taken that none remains on the cover, since nitrous acid or other reducing compounds are formed when a solution containing nitric acid is passed through the reductor. The results obtained by Brakes³ indicate that chromium does not interfere with the determination when a sulphuric acid solution is used.

GEORGE AUCHY.

NEW BOOKS.

ELEMENTARY CHEMISTRY. BY L. M. DENNIS AND F. W. CLARKE. New York: The American Book Company. 1902. 340 pp. LABORATORY MANUAL to accompany the above. 254 pp. Interleaved.

The matter treated in this book is essentially the same as that to be found in most other works of its class. The mode of treatment is not especially novel. It is in fact less so than in several

¹ This Journal, 24, 273.

² J. Soc. Chem. Ind., 21, 832.

³ Loc. cit