

and as such it may be weighed and directly determined. Lastly, the lime may be precipitated by oxalate of ammonia, ignited and converted into carbonate of lime, this is dried and weighed, and the amount of sulphate of lime it represents is calculated as follows :

$$\begin{aligned} 50 : 68 :: \text{weight of ignited oxalate of lime} : x \\ x = \text{weight of sulphate of lime.} \end{aligned}$$

THE MODERN ASPECTS OF THERAPEUTICS.

BY WALTER G. SMITH, M.D.

(Continued from page 63.)

It has lately become the fashion to decry the study of *materia medica*, and it is asserted that the possession of such knowledge is a useless burden on the memory. I am persuaded that this is a mistake, and a serious one, and I am sure that many will from repeated experience bear me out in the belief that an accurate knowledge of the characters and properties of drugs is of every-day utility to the prescriber, in enabling him to formulate correctly, to detect imposture, to avoid improper combinations, and to explain any phenomena that may unexpectedly arise.

Since our ignorance of the curative resources of the organism, and of the healing powers of drugs have been, and still are, the chief sources of error in therapeutics, and the chief obstacles to its improvement, it follows that the foundation-stone for positive knowledge must be laid in more accurate investigations into the real properties of drugs, and this leads me to consider how we may best set about such improvement, and in what directions we can look for assistance in such a course. I shall pass over without further reference the direct gains to therapeutics, and the lessening of the chances of confusion which flow from improved methods of diagnosis, from the more strict localization and classification of disease, and from the prosecution of physiological and pathological studies, and will direct attention, in the first place, to the influence which organic chemistry and physics are now extending over practical medicine.

The outcome of all recent developments in science, and, in especial, the doctrine of the correlation of force, *i. e.* the indestructibility or conservation of energy, the corner-stone of science, has been to render it in the highest degree probable that plants and animals are under the operation of the same laws as inorganic nature, and that all the changes and processes which are unceasingly at work within us are mainly the result of the action of physical and chemical forces upon the material constituents of our frame. The human body has often been compared to a machine, and though the comparison be-