SCIENCE

FRIDAY, FEBRUARY 3, 1911

CONTENTS

MSS. intended for publication and books, etc., intended for review should be sent to the Editor of SCIENCE, Garrison-on-Hudson, N. Y.

A UNIVERSAL LAW[1]

Now that we appreciate fully that physics, geology, engineering, physiology, medicine, botany, zoology and biology are sub-divisions of the broader science of chemistry, we see that the chemist of the future must know a great deal more than any of us now do if he is to keep in touch with the whole subject. Many people believe that this is impossible and that the scientific man of the future will be a narrow specialist, knowing only a small part of a single division of one science. I do not believe this. As we look back over the history of any science, we see always two opposing tendencies—one that complicates and one that simplifies. The discovery of new facts makes a subject more complex and more difficult to grasp. The discovery of new relations simplifies matters because it enables us to correlate facts and thus to get a better grasp of the subject.[2]

In the chemistry of to-day we have three great, simplifying generalizations which are familiar to all of you: the atomic theory, the periodic law and the phase rule. These have long since proved their value as a means of correlating facts and as working hypotheses enabling us to predict new facts. The value of these is not great, however, when we get beyond what is called chemistry in the narrower sense of the word.

As one universal law we have the great, simplifying generalization known as the

[1] Address of the retiring president of the American Chemical Society at Minneapolis, December 28, 1910.

[2] Cf. Bancroft, *Proc. Elisha Mitchell Soc.*, 20, 39, 1904.