

lin, the validity of some may be questioned, others are obvious errors which escaped the proofreader and will doubtless be corrected in the future editions the book is sure to demand, while the remainder depend upon the standpoint of the reviewer. It is the latter point to which I wish especially to refer.

If "A New Era in Chemistry" was written as a scientific text-book or as a contribution to scientific knowledge, then any departure from the utmost scientific accuracy of statement would be justly open to criticism, but such is evidently not the purpose of the book. It is rather a singularly successful attempt to give in sparingly technical language a résumé of the salient chemical developments of the last quarter of a century. As such it is of great value, not only to workers in other branches of science, but also to some of us whose work is in other departments of chemistry.

Of course it is desirable that every statement in such a book should be scientifically accurate, and this is a result somewhat difficult of accomplishment, unless the writer takes all the "juice" out of his style by confining himself to a strictly scientific terminology. To take an example: Dr. Franklin is inclined to cavil at the following language: "Radium is naturally radio-active as it is called;" "A radio-active substance is one that gives off radiations" (and then follows in the book a description of the different kinds of radiations). Granted that this language might be objected to in a text-book, it makes the author's meaning clear to the reader, and is obviously permissible in a book of this character.

In other words, the author seeks to convey certain ideas of modern chemistry to readers, many of whom have but limited chemical knowledge, and he does it successfully, even if the language is not that of scientific precision.

Regarding the criticism that Ota "accomplished nothing more remarkable than the measurement of the freezing points of solutions," it is to be recalled that these measurements opened up the solvate theory.

Nor do we think it remarkable that an author, in suggesting the consultation of some fuller work on radioactivity, should refer to his own book on the subject, where full references to the literature of radioactivity may be found.

It is unfortunate that in the popularizing of chemistry as well as other sciences, so few who know, write, and so few who write, know; and one reason, I apprehend, why so few who have competent knowledge, translate that knowledge into language for the people, is because they know it is almost impossible so to do, without exposing themselves to just such criticisms as that of Professor Franklin.

"A New Era in Chemistry" gives evidence of being an enthusiastically written labor of love, and is remarkably successful in giving a living bird's-eye view of the development of the chemistry of to-day. As such, I was glad to commend it—perhaps extravagantly—in my review in the *American Chemical Journal*. Had it been more slowly and painstakingly written, it might have presented fewer opportunities for scientific criticism, but I am sure it would have been far less delightful reading.

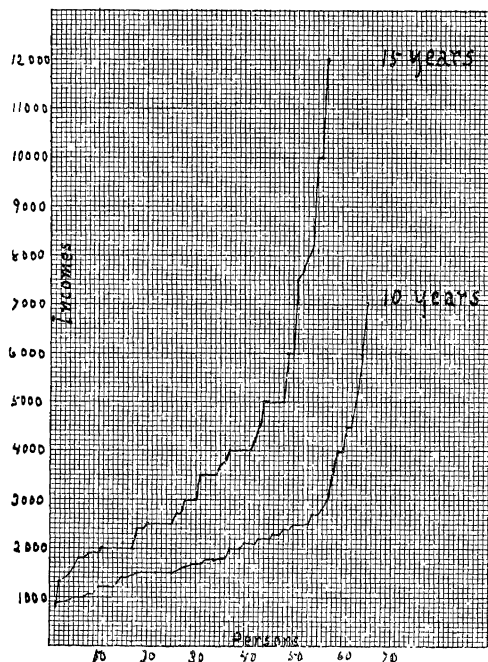
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#### INCOMES OF COLLEGE GRADUATES TEN AND FIFTEEN YEARS AFTER GRADUATION

SCIENCE for February 4, 1910, printed a statement of the incomes of sixty-seven of the hundred men in the Dartmouth class of '99 the tenth year out of college. At the quinquennial reunion last June the net incomes of fifty-six of the ninety-five now living were recorded. Practically all of the fifty-six were included in the group five years ago. Those from whom the facts were not secured undoubtedly would lower the average for the class somewhat, but the two groups are directly comparable. The figures five years ago were used editorially in at least one metropolitan paper to prove the wasted expense of a college education when the earning capacity ten years after graduation was so small. The present figures show that there is a very rapid rise in

this capacity after ten years. Five years ago there were nineteen men getting fifteen hundred or less, this year only four. Then only seventeen per cent. had more than three thousand dollars and last year a little over fifty per cent. were in this class. Five years ago



the highest man had seven thousand dollars and this time the highest was twelve thousand with two tens. Five years ago the average was \$2,097 and this time \$3,729, with the men at present much more closely massed about the average.

The plat shows the lower line exactly as published five years ago, and the upper line shows the present distribution of incomes.

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#### SCIENTIFIC BOOKS

*The Constitution of Matter.* By JOSEPH S. AMES. Houghton Mifflin Co., 1913. 8vo. Pp. x + 242.

This volume represents the 1913 series of lectures, six in number, given at Northwestern University under the N. W. Harris foundation.

The purpose of this foundation, as expressed

by the donor, "is to stimulate scientific research of the highest type, and to bring the results of such research before students and friends of Northwestern University and through them to the world." It was therefore necessary for Professor Ames, with the above subject, to undertake the extremely difficult task of presenting a true picture of the present status of scientific thought upon the broadest and the most fundamental, though the most dimly discerned, of the fields of science, and at the same time to do it in such a way as to hold the attention of a general audience.

That the lectures actually did command the interest of physicist and layman alike will be testified by all who heard them. Robbed however of the compulsion of Professor Ames's personality I suspect that the printed lectures will make their greatest appeal to the scientist rather than to that type of layman whose taste dictates the popular science of *Harpers*, *Scribners* and the like. For a careful scientific analysis, such as Professor Ames gives, of the concepts and phenomena which constitute the very foundations of physics, even though divorced, as it is here, from all attempt at mathematical formulation, is something more than the diversion of an idle hour. Indeed many a physicist will ponder long over some of these chapters, and read them more than once, and use them continually for reference as he attempts to put together the rapidly accumulating facts of molecular, atomic and electronic physics into a consistent theory of the constitution of matter.

There are few if any other men whose grasp of both the facts and the theories of physics is sufficiently comprehensive to enable them to discuss with such freshness, thoroughness and insight so many of the problems raised by recent investigations.

Perhaps the most charming feature of the lectures is the clearness and frankness with which Professor Ames reveals his own way of thinking about the problems of atomic and electronic physics and the definiteness of the physical pictures which he calls to his aid. There is no servile restatement of the most striking features of some other physicist's