

more than any man here." . . . "Yea, forsooth, good master (quoth this old man), for I am well nigh a hundred years old. . . . [and] forsooth, sir, (quoth he), I am an old man; I think that the Tenterton-steeple is the Cause of the Goodwin Sands. For I am an old man, sir, (quoth he), and I may remember the building of the Tenterton-steeple, and I may remember when there was no steeple at all there. And before that Tenterton-steeple was in building, there was no manner of speaking of any flats or sands that stopped the haven, and therefore I think that the Tenterton-steeple is the cause of the destroying and decay of Sandwich haven." And so to my purpose, is preaching God's word the cause of rebellion, as the Tenterton-steeple was cause that Sandwich haven was decayed.

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#### SCIENTIFIC BOOKS

*Roger Bacon.* Essays contributed by various writers on the occasion of the commemoration of the seventh centenary of his birth. Collected and edited by A. G. LITTLE. Oxford University Press, Oxford. 1914. Pp. viii + 426.

American universities and American scholars are fortunate in the undisputed right to celebrate the anniversaries of any of the great teachers that the world has known. Oxford has the first claim to commemorate the name and fame of Roger Bacon, for there the "learned doctor" spent many years, both as teacher and student. The committee on the commemoration of the seventh centenary of Roger Bacon's birth has erected a statue of Roger Bacon, by Mr. Hope Pinker, in the University Museum at Oxford, has issued the volume of memorial essays under discussion, and has raised funds for the publication of certain unpublished works of the great Franciscan. In America Columbia University has celebrated this anniversary with appropriate exercises, including a pageant; at the University of Michigan the Research Club devoted its annual memorial meeting to public exercises on Roger Bacon, with papers by Pro-

fessors Dow, Lloyd, Guthe and Tatlock, discussing the life and times, the philosophy, the scientific activity and the relation to magic and astrology of Roger Bacon. The *Open Court Magazine* dedicated the issue of August, 1914, entirely to Bacon, and foreign journals, such as the *Revue des deux Mondes*, have taken this time to discuss the contributions to various fields made by Bacon.

Simply the titles of the essays in the present volume, and the list of contributors, pay such a high tribute to the intellectual activity of Roger Bacon that it seems desirable to present the list of contents:

- I. Introduction: On Roger Bacon's Life and Works. By A. G. Little, M.A., Lecturer in Paleography in the University of Manchester.
- II. Der Einfluss des Robert Grosseteste auf die wissenschaftliche Richtung des Roger Bacon. Von Universitätsprofessor Dr. Ludwig Baur in Tübingen.
- III. La Place de Roger Bacon parmi les Philosophes du xiii<sup>e</sup> siècle. Par François Picavet, Secrétaire du Collège de France, Directeur à l'École pratique des Hautes-Études.
- IV. Roger Bacon and the Latin Vulgate. By His Eminence Francis Aidan Cardinal Gasquet, D.D., O.S.B., President of the International Commission for the Revision of the Vulgate.
- V. Roger Bacon and Philology. By S. A. Hirsch, Ph.D.
- VI. The Place of Roger Bacon in the History of Mathematics. By David Eugene Smith, Professor of Mathematics, Teachers College, Columbia University.
- VII. Roger Bacon und seine Verdienste um die Optik. Von Geheimer Hofrat Professor Dr. Eilhard Wiedemann in Erlangen.
- VIII. Roger Bacons Lehre von der sinnlichen Spezies und vom Sehvorgange. Von Dr. Sebastian Vogl in Passau.
- IX. Roger Bacons Art des wissenschaftlichen Arbeitens, dargestellt nach seiner Schrift "De Speculis." Von Dr. J. Würschmidt in Erlangen.
- X. Roger Bacon et l'Horreur du Vide. Par Pierre Duhem, Membre de l'Institut de France, Professeur à l'Université de Bordeaux.

- XI. Roger Bacon: His Relations to Alchemy and Chemistry. By M. M. Pattison Muir, M.A., Fellow, and formerly Prælector in Chemistry, of Gonville and Caius College, Cambridge.
- XII. Roger Bacon and Gunpowder. By Lieutenant-Colonel H. W. L. Hime, (late) Royal Artillery.
- XIII. Roger Bacon and Medicine. By E. Withington, M.A., M.B.
- XIV. Roger Bacon in English Literature. By Sir John Edwin Sandys, Litt.D., LL.D., F.B.A., F.R.S.L., Public Orator in the University of Cambridge.
- Appendix. Roger Bacon's Works, with references to the MSS. and Printed Editions. By A. G. Little.

A critical discussion of these fourteen essays is obviously beyond the power of any one individual. However, any scholar in any field will find much that is of interest and even of profit, in intellectual stimulus, in all of these essays. Roger Bacon came at a time when the world of the Middle Ages was re-awakening. The learning of the Greeks and the Byzantines, the learning of the Jews, and the learning of the Arabs, were made accessible to the scholars of that time by the numerous translators of the eleventh, twelfth and thirteenth centuries; although Roger Bacon had much to say about the inaccuracy of many of the translations with which his readers were familiar, the fact remains that to the authors of these works is due in large measure the revival of learning which was in full swing in the thirteenth century. It need then occasion no surprise that much of the material which is found in the writings of Roger Bacon may be found in the writings of Greek, Jewish and particularly Arabic scholars who preceded him. So, too, as Baur points out, the teachings of Bacon may frequently be traced to the influence of Robert Grosseteste, the great Bishop of Lincoln and a scholar entirely of the type of Bacon. Nor does this dependence upon earlier writers diminish the importance and significance of Bacon's work. There are now and then those geniuses who proceed far in advance of the

main body of scholars; but their work in a large measure is lost unless, in some way, the great mass of scholars can arrive at the point to which the advance guard has attained. Only in this way can we understand how it happened that the work of Archimedes, so much in advance of its age, exerted so little influence for fifteen hundred years. Archimedes lacked continuators and those who could popularize his work.

The modern point of view in many discussions is most striking. Bacon would have the ancient languages studied for a more complete and precise understanding of the Scriptures; he urged the study of modern languages in order to promote trade, to facilitate political relationships, and for the conservation of peace. The accounts of the great travellers of his time, and the geography of the world, were of intense interest to him. His interest in mechanical discoveries, and a somewhat prophetic vision, are evident in his statement: "I have not seen a flying machine, and I do not know any one who has seen one; but I know a wise man who has thought out the principle of the thing."

This work can be commended in its entirety to all students of science. The volume is interesting and instructive in many ways. Any one who reads the work through will have obtained a very clear idea of the intellectual activity, and the life of the students in the Middle Ages, as well as a renewed appreciation of the underlying unity of all learning.

The first three essays in the work are written in English, German and French, respectively; the following three are written by a Cardinal of the Roman Church, a Jew and an American. May this kind of international cooperation speedily return, and wipe out the memory of these terrible days when gunpowder, possibly invented by Roger Bacon and used by him as an amusement for children, is being used by civilized man for the destruction of his fellows.

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