he has been tricked into taking seriously a newspaper jest.

These minor faults, however, are far outweighed by his fine scholarship and his excellent writing, which actually scintillates now and then, without losing the least of its dignity or meaning. Here is a book which should have a wide effect on the future study of Western Pennsylvania history.

*Pittsburgh Press*

**George Swetnam**


"The distinction of this volume is that it represents the first comprehensive historical account of American technology and invention as a basic contribution to the nation's culture." One can hardly do better in opening a review of this volume than to quote the sentence above, the opening lines of Guy Stanton Ford's foreword to this pioneering volume by the former head of the University of Pittsburgh History Department and long-time vice-president of the Historical Society of Western Pennsylvania.

Some-one has said that no ordinary driver today can hope to understand the mechanical workings of today's complex automobiles unless he has been tinkering with them since the days of the Model A or before. The same observation would be valid concerning the staggering amount of sheer knowledge necessary to produce this encyclopedic work. Technological knowledge, as Dr. Oliver shows, increases not by arithmetic but by geometric proportions, and nothing short of a lifetime of study, teaching, and overseeing and encouraging the research of scores of graduate students, could have produced this history. A generation hence, the job will be too much for any one scholar.

It is quite impossible to condense a story which goes from the technological level of the winnowing fan to the bathy-thermograph in a few generations. Perhaps the best generalization one can make is to say that here is captured, better than anywhere else, the meaning and story of that much bruited phrase, "American know-how." Pittsburghers, for example, will find a ready explanation of the technological bases for this region's greatness—exactly how George Westinghouse proposed to "stop a train with wind" through the use of high air-brake; the secret of Nikola Tesla's polyphase induction motor; the difference between a
Bessemer Converter and the Open Hearth furnace (which is neither open nor a hearth!). Once the reader has absorbed these mysteries, he will doubtless be moved to follow the author the rest of the way through the almost Disney-like wonderland of expanding technology. No minor ingredient of the book is Dr. Oliver's own patented sense of humor and some of the fortunately still-retained sense of wonder of the farm boy at the unfolding magic of modern chemistry and physics which a later and more blasé generation sadly lacks.

The primary contribution which this book can make is to help to bridge the celebrated gap between the material resources at our disposal and our understanding of how best to control them. (One need only read the chapter on the technology of World War II to be reminded what a hideous Pandora's box science can be.) Here we have a book which can serve as a bridge between the technician and the social scientist.

The book should serve another purpose. Like all pioneering work, it opens up avenues of further research and thought, avenues which no pioneering work could possibly cover in a single volume. What is the relation of all this material change to aesthetics? What is the relation to American philosophy, particularly that of men like Dewey and James? What are the social implications? We read a rather poetic description of the American steelworker on page 324, but it does not mention that he worked an 84 hour week, including an occasional 24 hour shift! That fact cast an influence on the history of an earlier day, just as the labor displacement of today's automation creates both problems and opportunities.

For a book so crammed with factual information, there are amazingly few inaccuracies. One is the statement on page 630 that America's coal supply is in danger of exhaustion. Actually, known reserves are extensive enough to last many centuries at the present high rate of consumption. It is one of our most plentiful resources and one which will greatly increase in importance, not only as a fuel but as a source of myriad other raw materials.

One wishes that the book had contained some illustrations (especially useful given the nature of the textual material) and, because it is a ground-breaking work, an essay on sources. Since, however, the book is quite rightly designed for use as a text book, it is understandable that cost factors dictated some omissions.
All things considered, this is a book which will be consulted by people from many walks of life with increasing frequency. Most writers of history in the older fields, such as politics or biography, find that seventy-five per cent of their work is already done, and they need only fill in the chinks. Here is a book that is just the opposite. It replaces a yawning void with a good solid edifice which will serve well for years to come.

*University of Pittsburgh*  
Hugh G. Cleland


A new and impressive history of Pennsylvania in two volumes has been added to the increasing number of books on various subjects devoted to this state. Pennsylvania has developed a keen interest in its own history, much aided and abetted in recent years by Pennsylvania Week and also by planned courses in schools and colleges.

No one perhaps is better qualified than Mr. Stevens to write this book which spans a period from 1682 to 1956. He was born in Centre County, educated in the state, except for a higher degree in history at Columbia. He then taught history and later became a member of the Pennsylvania Historical Commission, where he is the Research Director. He has traveled to every corner of the state in his search for historical records, visited libraries and historical societies, collected manuscripts and microfilm records, consulted unpublished French documents in Canada and has lectured extensively on the importance and value of Pennsylvania history.

He has given much thought to the subject of history and to the Pennsylvania way of life. Within the covers of 710 pages is found more factual information, more over-all coverage of Pennsylvania than any publication ever printed. His task has been a large and difficult one, but it is easy to follow his plan and arrangement, consisting of short, well written chapters, followed by suggested readings in essay form.

Each chapter is on a state wide or a regional basis depending on the subject. The Indian question covers the entire state while labor is confined to the industrial and coal centers. The Pennsylvania Germans are a regional discussion while politics is on a state level. One could wish for more material on the interesting chapter on Indians with a