

pissima Bibliografia. Si tratta della prima bibliografia sistematica e completa dei lavori del chimico francese. È divisa in varie sezioni relative alle opere pubblicate dal solo Bethollet, alle opere alle quali ha contribuito con altri scienziati, alle « brochures » alle « brochures collectives » e alle traduzioni. Utilissimo è l'elenco dei vari articoli e rapporti pubblicati da Berthollet in riviste e raccolte di « mémoires ». Questa bibliografia è una fonte indispensabile per ulteriori studi sulla scienza francese tra la fine del settecento e i primi decenni dell'ottocento.

FERDINANDO ABBRI
Istituto di Filosofia
Università di Firenze

Studies in the Scientific and Mathematical Philosophy of Charles S. Peirce: Essays by Carolyn Eisele, edited by R. M. Martin. The Hague, Mouton Publishers, 1979. Pp. 376 + xii. Index of names, index of subjects.

This is the most significant book about Peirce yet to appear. I hope to show you, dear reader, why this is true. Then I want to give you some reasons why that fact is an important one. Finally, I hope to convince those of you who may be interested in the several fields of study that touch upon Peirce's life work that the present time is one holding many opportunities for renewed scholarship in Peirce studies.

First among the many reasons for the importance of this work is that it is the fruit of a long and continuing study of Peirce which has based upon the simple but important principle of letting Peirce speak for himself. The essays span Carolyn Eisele's career from its beginning to the present day. She was one of the first scholars to recognize that the *Collected Papers* omit-

ted or rearranged materia that is crucial to a proper understanding of Peirce's works. Indeed, through her efforts, manuscript materials that were misplaced or mishandled were restored to safekeeping and were studied.

And she was probably the first scholar to realize the vast extent to which Peirce's complete intellectual life was molded by his participation, as a distinguished contributor, in the work of mathematics and science of his time. Before the essays now collected in this volume began to appear, it was widely assumed that Peirce's work in philosophy and logical could be understood more or less independently of his activities as a distinguished mathematician, physicist, chemist, geodist, psychologist, metrologist, historian, or linguist. This set of essays, in a single-handed manner have broken that spell, and have laid open how Peirce's practice as a mathematician and scientist make his philosophical and logical works unique, in that the latter develop and evolve out of foundations located in the former. Thus, when Peirce speaks to us directly (meaning that we leave aside preinvestigative assumptions about what he is *supposed* to be saying to us), he *tells* us (*Studies*, p. 5):

My philosophy may be described as the attempt of a physicist to make such coniectures as to the constitution of the universe as the methods of science may permit... The best that can be done is to supply a hypothesis, not devoid of all likelihood, in the general line of growth of scientific ideas, and capable of being verified or refuted by future observers.

Or, concerning the importance of mathematics for philosophy, in 1894, Peirce wrote to his friend Judge Russell, that (*Studies*, p. 277) his

special business is to bring mathematical exactitude, I mean modern

mathematical exactitude, into philosophy, and to apply the ideas of mathematics in philosophy.

A third reason for the significance of this work is that it calls to attention, in a way in which it cannot be ignored, that Peirce was a very accomplished historian of science, perhaps the first great American historian of science and mathematics. This is noteworthy in itself, as a simple fact. But because of Dr. Eisele's work, we can now see that Peirce thought that the history of science provided yet a third foundation for philosophy and logic. Ponder carefully, good reader, these words, written by Peirce early in his career, paraphrased in *Studies*, page 171:

Each step in the development of science was a lesson in logic.

Peirce retained and used this principle throughout his career (see, for example *Studies*, p. 289, a comment from 1903). Besides employing the history of science as a methodological guide for his philosophical and logical pursuits, Peirce had contracted to prepare a book on the subject. One of the tasks of the continuing career of the author of the *Studies* is to prepare the best reconstruction of Peirce's partially finished book on this subject. (This is a rather large set of important manuscript materials). A good understanding of the impact that this work in progress will have can be acquired from a careful reading of the present set of essays.

Now, why is the fact that this is a significant book about Peirce a fact that is of any interest or importance to us sixty-six years after Peirce's death? It is because Peirce was a great encyclopedic genius, the American Da Vinci in many respects, who was far ahead of his era in his intellectual accomplishments. This means that he was facing, and often making progress toward solving (or perhaps solved) problems which we still confront. To cite one example,

Peirce's insistence upon the importance of the history of science for understanding the nature and philosophy of science for understanding the nature and philosophy of science and its logic is a matter that is currently under vigorous study. To cite another example, the extent to which mathematical or « exact thought » can illuminate philosophy is now being actively examined. Or, for a third example, Peirce's semiotic is receiving widespread attention by modern students of this new science, of which Peirce is regarded by many as the founder. Persons seeking a means for beginning to understand Peirce's work in its contemporary relevance could not find a better guide than this volume.

This brings us to the third point, a recommendation to those of you who might be interested in any of the numerous fields relevant to Peirce's works. There exists now a unique opportunity for scholars in Europe, or the Americas, or throughout the entire world, to study the works of Peirce in a way that has virtually not been possible until this time. Because a great deal of Peirce's finest work was never published, but was recorded and preserved in manuscript form; and because his published work is much wider than hitherto known; and because until recently only the seriously abbreviated *Collected Papers* had been available for study; for these and other reasons, scholars can now have access in convenient formats to the real Peirce, for the first time since his death in 1914. And the real Peirce is radically different than the portrait that has been painted of him in most of the secondary scholarship. The present volume, and a closely related and essential collection entitled *The New Elements of Mathematics*, by Charles S. Peirce (edited by Carolyn Eisele, Mouton: The Hague, 1976) are two elements in the new set of tools for Peirce scholarship. A complete listing of all of them can

be found in the first number of a new series, *Peirce Studies* (Institute for Studies in Pragmaticism, Texas Tech University, Lubbock, Texas 79409). Thus, with most of the secondary scholarship to date flawed by previous lack of access to essential materials now available, contemporary scholars can begin working with Peirce as if his writings had just been found in a sealed capsule. That is to say, the field is new and workers are needed.

No book is perfect. But probably the only flaw that needs comment here is the repetition occasionally to be found from one essay to another. This is to be expected in a collection of papers of this kind, delivered as separate lectures throughout several years. It was a wise decision by the editor, Professor Martin, to keep the essays in their original form, despite the iteration this introduced. By so deciding, he has presented the development of Eisele's work in an accurate manner, a feature worthy of preservation. And Martin deserves the thanks of the international scholarly community for his efforts in presenting this unique set of historical, biographical, and philosophical essays about the great Peirce by one of Peirce's greatest disciples.

KENNETH LAINE KETNER
Texas Tech University

ALBERT EINSTEIN, *Four commemorative Lectures*, The Humanities Research Center, The University of Texas at Austin, 1979.

The four lectures were delivered at the Humanities Research Center of the University of Texas as part of the celebration of the first centenary of Einstein's birth.

The first lecture, by Loyd S. Swenson Professor of History at the Uni-

versity of Houston is concerned with the social context of Einstein's life and work. It surveys the principal events of Einstein's life, pointing out various influences in the development of his thought.

The second, by C. P. Snow, is titled: "On Einstein the Man", and is mainly based on a one-day visit that the lecturer, accompanied by Leopold Infeld, paid on Einstein in Long Island in 1937. Snow comments on Einstein's frequent use of "God" to describe his own feelings about nature and the universe. He recalls Einstein's varied political positions ranging from his youthful categorical rejection of loyalty to any national group to his later adherence to the Zionist cause, from his initial absolute pacifism to his involvement in the atomic bomb, and finally to his anxiety about the threat of a nuclear war. But Einstein is presented as a person of such extreme "calm", "benignity", "decency" and "Kindness" — and one could add wordly naiveté — that one is led to forgive him for what, in others, could be blamed as inconsistency.

The third lecture is by a philosopher from Columbia University Howard Stein, and is concerned with the problem of motion, from Galileo to Newton, and from Newton to Einstein's special and general relativity.

The most interesting of the series is, to me, the last lecture, by Dr. J. Prigogine, a Nobel — prize physicist, Director of the Center of Thermodynamics at the University of Texas. Besides a certain amount of reviewing and surveying, unavoidable in the occasion, Dr. Prigogine presents some personal opinions and raises interesting points.

Commenting on Einstein's rejection of quantum mechanics, Dr. Prigogine remarks that a certain amount of uncertainty exists even in classical physics. He points out that it is meaningless to speak of a precisely determined, sharp